

LITERARY GAZETTE

Journal of Archaeology, Science, and Art.

N° 24—1856.

LONDON, SATURDAY, AUGUST 9TH.

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LONDON, SATURDAY, AUGUST 9, 1846.

REVIEWS.

On the State of Society in France before the Revolution of 1789, and on the Causes which led to that Event. By Alexis de Tocqueville, Member of the French Academy. Translated by Henry Reeve. Murray.

THE English reader of this volume, hastening to it with the curiosity and the deference which is due to the eminent name of the author, and looking for abundant stores of fact and philosophy in its pages, will find not only these, but matter of more absorbing interest. He will discover, under the guise of an abstract treatise upon the records of a past age, an expression of living opinion upon the politics of the present. M. Alexis de Tocqueville is far too great a writer to condescend to garnish a scientific essay with allusions to the government of the day for mere popularity's sake; nor is it suggested that this volume is not an original historical investigation, undertaken and carried out in all good faith for its own sake alone. But it is impossible for a writer of genius and a Frenchman to treat upon a past epoch in the history of his country without allusion to the prevalent ideas of the day. The results of the author have been arrived at, possibly, by calm and strict deduction from the facts he has brought to light; but their statement betrays flashes of that vivid passion which still animates the high-spirited communities of Paris. No one seemed to doubt but that M. de Montalembert, in his recent work on England, meant to suggest a theme for speculation much nearer home, and in his own day. This cannot be said, perhaps, in direct terms of M. de Tocqueville; but his opinions upon despotic government, hinted rather than openly uttered, apparently forced out by some irrepressible impulse, show the intensity of the stifled forces which yet exist in the literary ranks of French society. In default of representative men, these books must be taken as the not less significant because imperfect utterances of the votaries of freedom. It will be for the student of these pages to decide how far the pressure of the hour has warped the views of the historian, or whether he has succeeded in tracing the beginnings of revolutionary action in France to their true sources,—if his reasoning be sound, whilst his predilections are so distinctly marked. He says:—

"I hope I have written this book without prejudice, but I do not profess to have written it without passion. No Frenchman should speak of his country and think of his time unmoved. I acknowledge that in studying the old society of France in each of its parts, I have never entirely lost sight of the society of more recent times. I have sought not only to discover the disease of which the patient died, but also the means by which life might have been preserved. I have imitated that medical analysis which seeks in each expiring organ to catch the laws of life. My object has been to draw a picture strictly accurate, and at the same time instructive. Whenever I have met amongst our progenitors with any of those masculine virtues which we most want and which we least possess—such as a true spirit of independence, a taste for great things, faith in ourselves and in a cause—I have placed them in relief: so too, when I have found in the laws, the opinions, and the manners of that time traces of some of those vices which, after having consumed the former society of France, still infest us, I have carefully brought them to the light, in order that, seeing the evil they have done us, it might better

be understood what evils they may still engender. To accomplish this object, I confess I have not feared to wound either persons, or classes, or opinions, or recollections of the past, however worthy of respect they may be. I have done so often with regret, but always without remorse. May those whom I have thus perhaps offended forgive me, in consideration of the honest and disinterested object which I pursue."

The peculiar value of M. de Tocqueville's researches arises from the fact that the condition of France immediately before the year 1789 is already involved in much obscurity. Like a Gallie invasion, the Revolution swept into oblivion many invaluable records of past government. The *Ancien Régime* is a thing not only obsolete, but as to many of its minor details irrecoverably lost. The author has, however, dived into remote repositories where its imperfect archives still exist; and has gone over with great labour the voluminous instructions drawn up by the Three Orders in 1789—documents which he describes as the testament of the old society of France, the supreme record of its wishes, and the authentic declaration of its last intentions. His general conclusions are, that many modern institutions of France, commonly considered as dating from the era of the Revolution, had a much older existence; that the practical executive machinery of the government of Louis XVI. was very different from the ostensible one; that the burdens of the people had been considerably lightened before the meeting of the States General; and that the outbreak of 1789 was preceded, as that of 1639 was in England, by several years of unusual plenty and prosperity—as the smooth flow of the rapid leads to the uproar and crash of the cataract.

It should be stated, *in limine*, that M. de Tocqueville supports the prevalent and popular ideas as to the real object and character of the Revolution. It was not made to destroy the authority of religious belief. In spite of Voltaire and the economists, the frenzied attacks that were made upon the Church were in the main directed against the political institution, and not against the doctrines of Christianity. Democracy is not essentially hostile to religion. It would be strange, indeed, if institutions which tend to give power to the ideas and passions of the people should, as a permanent and inevitable result, lead the minds of men towards impiety. Nor did the Revolution tend, as its adversaries said (Burke amongst them, if indeed, his fiery declamation involved any settled theory in his own mind), to give stability to disorder and to methodize anarchy. It had, in fact, one leading principle, and one only—viz., the destruction of feudal institutions. The real question at issue was the abolition of the common law of France, and the substitution of a more simple and uniform system of society and politics. This was the true cause, and it was a sufficient one, for all those results which still awe and astonish the world. Thus far, we presume, there is no difference of opinion, and the author and his readers will be universally agreed: but that the innovations which the Revolution produced were not so great as has been supposed, and that the modern state of society in France is analogous to that under Louis XVI., these are the views which M. de Tocqueville proceeds to advance; with what results we will endeavour to consider. The inquiry forms the second part of this treatise.

The first question upon which a novel light has been thrown by the author is the condition of the French peasant before the Revolution. It is a mistake to suppose that he was a serf; on the contrary, he was less an *adscriptus glebæ* than the labourer of Germany at the same period. He could buy and sell land, come and go, deal and labour, as he pleased; whereas the subject of Frederick the Great, in a similar class, could not quit his domain, change his calling, or marry without his lord's pleasure. He could buy land, indeed, with very limited rights; but he could not mortgage; and he was subject to heavy labour rents (*corvées*) to the owners of the soil. Whether as a consequence of these immunities or not, the fact remains that, to become the absolute owner of land was a passion with the French peasant, for which he was ready to make any sacrifices. An enormous subdivision of landed property throughout France was the consequence, and this the author suggests as a feature which the old monarchy and the present empire possess in common. True it was that the Seigneur retained his pecuniary privileges, whilst he renounced territorial government over the peasant; and thus, no sooner did the labourer—*fortunatus nimium sua si bona novit*—become a landowner, than he found upon his shoulders burdens of intolerable severity, for which he got no return either of personal security or of money circulation. The Seigneur was generally an absentee; and, if resident, could afford the small proprietor no protection, and no assistance in the management of parochial and public affairs. Whilst the labourer remained a tenant, some of the feudal burdens, such as tithes, rent-charges, tolls, and taxes, affected him slightly. They were deducted from the rent. But once let him become owner, and his prospects were immediately inverted:—

"Picture to yourself a French peasant of the eighteenth century, or, I might rather say, the peasant now before your eyes, for the man is the same; his condition is altered, but not his character. Take him as he is described in the document I have quoted—so passionately enamoured of the soil, that he will spend all his savings to purchase it, and to purchase it at any price. To complete this purchase he must first pay a tax, not to the government, but to other landowners of the neighbourhood, as unconnected as himself with the administration of public affairs, and hardly more influential than he is. He possesses it at last; his heart is buried in it with the seed he sows. This little nook of ground, which is his own in this vast universe, fills him with pride and independence. But again these neighbours call him from his furrow, and compel him to come to work for them without wages. He tries to defend his young crops from their game; again they prevent him. As he crosses the river they wait for his passage to levy a toll. He finds them at the market, where they sell him the right of selling his own produce; and when, on his return home, he wants to use the remainder of his wheat for his own sustenance—of that wheat which was planted by his hands, and has grown under his eyes—he cannot touch it till he has ground it at the mill, and baked it at the bakehouse of these same men. A portion of the income of his little property is paid away in quit-rents to them also, and these dues can neither be extinguished nor redeemed.

"Whatever he does, those troublesome neighbours are everywhere on his path, to disturb his happiness, to interfere with his labour, to consume his profits; and when these are dismissed, others in the black garb of the Church present themselves to carry off the clearest profit of his harvest. Picture to yourself the condition, the wants, the character, the passions of this man, and

compute, if you are able, the stores of hatred and of envy which are accumulated in his heart."

Doubtless this is a forcible sketch, but, unless the author can go further, and say that this represents the condition of the French peasant at the present day, what becomes of the argument arising out of the subdivision of land? The analogy exists only in appearance—it is a coincidence, and nothing more.

A second question to which the attention of the reader is directed, is the system of centralization which exists at this day in France. The author begins by conceding that this is an admirable achievement; but he maintains that it is not an achievement of the Revolution. He explains how, to a superficial observer of the old monarchy, there is presented a mass of diverse and conflicting jurisdictions, authorities, and rights, leading him to wonder how the machinery of government could be conducted at all. Courts of justice are to be found forming administrative regulations; towns governed by magistrates, some of whom were appointed by the lord of the soil, others elected by their fellow citizens, others instituted by purchase. But the student, going a little deeper, will find a system of internal government of the greatest compactness, vigour, and activity, gradually growing up and flourishing under the shade of older institutions, which was drawing to itself all executive functions. This system consisted, first, of the King's Council, a supreme court of appeal and of administration, under the single agency of the Comptroller-General—secondly, of a body of agents, one in each province, called the *Intendant*—and, thirdly, of minor agents, called Sub-Delegates. The Council every year farmed out the taxes, whilst their agents fixed the amount of the *taille*, the capitation-tax and the *vingtièmes*, and controlled their collection. So, also, the number of men to be levied for the militia was decided yearly, and the proportions in which the local districts were to contribute these men were settled by the intendants and sub-delegates. The construction of roads and bridges, the regulation of the *maréchaussée*, or mounted police, the measures for the relief of the poor, and the regulation of crops, were all in the hands of this central government. Along with this institution of intendants and sub-delegates, offices which the government took care never to sell, but always to bestow upon the most able men, must be taken into account the sale of the municipal offices in the towns. The inhabitants were thus burdened with the support of officials who had not the confidence of the central government, but who were protected by the old laws of the country, which laws themselves were under the supervision of the Supreme Council. Such being the state of the towns, in the parishes the powers formerly exercised by the collectors and the syndics gradually fell into the hands of the intendant and the council: whilst the seigneur, who was distinguished from the rest of the inhabitants by special privileges, was kept out from all the functions of government. Thus, says the author—

"Under the social condition of France anterior to the Revolution of 1789, as well as at the present day, there was no city, town, borough, village, or hamlet in the kingdom—there was neither hospital, church fabric, religious house, nor college, which could have an independent will in the management of its private affairs, or which could administer its own property according to its own choice. Then, as now, the executive administration therefore held the whole French people in

tutelage; and if that insolent term had not yet been invented, the thing itself already existed."

What does all this show beyond the bare fact that centralization existed before the Revolution, and that the principle exists now? But does it exist under the same circumstances, and accompanied by the same conditions? Did centralization of itself lead to the Revolution? On the contrary, if it were a great achievement before the Revolution, is it less so now? These questions naturally suggest themselves; if they remain unanswered, M. de Tocqueville's investigations resolve themselves into a very narrow compass—the proof of the simple proposition that centralization is an achievement which is not due to the Revolution.

The author proceeds to state, that under the old monarchy, courts of extraordinary jurisdiction protected the agents of government from the operation of the ordinary law; and an example is cited where an intendant wrote to the Comptroller General to say—

"I cannot sufficiently represent to you how injurious it would be to the interests of the Administration, if the contractors were abandoned to the jurisdiction of the ordinary courts, whose principles can never be reconciled to those of the Government."

"These lines were written," says the author, "precisely a hundred years ago, but it appears as if the administrators who wrote them were our own contemporaries."

Again, one of the designs of Louis XV., in the year 1761, appears to have been to have established a leading newspaper, to be called the '*Gazette de France*,' which the Government hoped to make superior in ability and intelligence to the all rest. The sub-delegates were called upon to contribute to this design, by furnishing information of remarkable occurrences that had taken place in their districts. This plan, however, failed from causes that are obvious enough, whereupon the author remarks:—

"History is a picture gallery, containing few originals and a great many copies."

He means of course to reflect upon the official position of the leading organ of the French government. The parallel, however, is not very exact, and the comparison shows little else but ingenuity and impatience of the law of signature.

In the chapter which follows, the thread of the general argument is not so clearly maintained. The author speaks of the preponderance of Paris, of the dislocation of classes among the community, of the isolation of the nobility, the eagerness of the middle class to purchase office, and thereby obtain exemption from taxation, of the absenteeism of the gentry, and the indigence and miseries of the labouring class, as among the predisposing causes of the Revolution, but he has omitted to show that these causes are at work now, and that the comparison he has instituted is complete. In the following instance, indeed, which we select from a number of passages, interesting either for their extensive observation or deep reflection, the comparison between the *ancien régime* and the empire becomes a contrast of the most forcible kind:—

"The baseness of mankind is, moreover, not to be estimated by the degree of their subserviency to a sovereign power: that standard would be an incorrect one. However submissive the French may have been before the Revolution to the will of the King, one sort of obedience was altogether unknown to them; they knew not what it was to bow before an illegitimate and contested power—a

power but little honoured, frequently despised, but which is willingly endured because it may be serviceable, or because it may hurt. To this degrading form of servitude they were ever strangers. The King inspired them with feelings which none of the most absolute princes who have since appeared in the world have been able to call forth, and which are become incomprehensible to the present generation, so entirely has the Revolution extirpated them from the hearts of the nation. They loved him with the affection due to a father; they revered him with the respect due to God. In submitting to the most arbitrary of his commands, they yielded less to compulsion than to loyalty, and thus they frequently preserved great freedom of mind even in the most complete dependence. To them the greatest evil of obedience was compulsion; to us it is the least: the worst is in that servile sentiment which leads men to obey. We have no right to despise our forefathers. Would to God that we could recover, with their prejudices and their faults, something of their greatness!"

Towards the close of the volume, M. de Tocqueville proceeds from general principles to those particular and more recent incidents which finally determined the occurrence, origin, and character of the Revolution. He describes the literature and philosophy of the time, notices the then recent occurrences in America, the prevailing infidelity of the age—phenomena with which all are familiar; and demonstrates a fact which is not so generally noticed—namely, that valuable reforms preceded the Revolution, and the attempts which were made too late to relieve the evils of the nation, precipitated the great event. The disquisitions which follow appear to be in the main an amplification and repetition of similar views. The morbid anatomy of France under the monarchy is laid open to the reader afresh in all its complicated details, by a writer of European reputation, a historian, a politician, and a jurist, and a man whose life has been spent amidst the stir and conflict of the passions he delineates. A final passage, containing a deliberate judgment on the character of the French nation, described by one of themselves, is too characteristic to be passed by:—

"When I consider this nation in itself it strikes me as more extraordinary than any event in its own annals. Was there ever any nation on the face of the earth so full of contrasts and so extreme in all its actions; more swayed by sensations, less by principles; led therefore always to do either worse or better than was expected of it, sometimes below the common level of humanity, sometimes greatly above it;—a people so unalterable in its leading instincts, that its likeness may still be recognised in descriptions written two or three thousand years ago, but at the same time so mutable in its daily thoughts and in its tastes as to become a spectacle and an amazement to itself, and to be as much surprised as the rest of the world at the sight of what it has done;—a people beyond all others the child of home and the slave of habit, when left to itself, but when once torn against its will from the native hearth and from its daily pursuits, ready to go to the end of the world and to dare all things; indolent by temperament, yet accepting the arbitrary and even the violent rule of a sovereign more readily than the free and regular government of the chief citizen; to-day the declared enemy of all obedience, to-morrow serving with a sort of passion which the nations best adapted for servitude cannot attain: guided by a thread as long as no one resists, ungovernable when the example of resistance has once been given: always deceiving its masters, who fear it either too little or too much: never so free that it is hopeless to enslave it, or so enslaved that it may not break the yoke again; apt for all things, but excelling only in war; adoring chance, force,

"success, splendour and noise, more than true glory; more capable of heroism than of virtue, of genius than of good sense, ready to conceive immense designs rather than to consummate great undertakings; the most brilliant and the most dangerous of the nations of Europe, and that best fitted to become by turns an object of admiration, of hatred, of pity, of terror, but never of indifference!"

"Such a nation could alone give birth to a revolution so sudden, so radical, so impetuous in its course, and yet so full of re-actions, of contradictory incidents, and of contrary examples. Without the reasons I have related the French would never have made the revolution; but it must be confessed that all these reasons united would not have sufficed to account for such a revolution anywhere else but in France."

The following passage we select as displaying at once the political depth of the writer's reflections, the sublimity of his views, and the skill with which his language has been rendered by the translator into our idiom:—

"It is evident that when nations are ill-directed they soon conceive the wish to govern themselves; but this love of independence, which only springs up under the influence of certain transient evils produced by despotism, is never lasting: it passes away with the accident that gave rise to it; and what seemed to be the love of freedom was no more than the hatred of a master. That which nations made to be free really hate is the curse of dependence."

"Nor do I believe that the true love of freedom is ever born of the mere aspect of its material advantages; for this aspect may frequently happen to be overcast. It is very true that in the long run freedom ever brings, to those who know how to keep it, ease, comfort, and often wealth; but there are times at which it disturbs for a season the possession of these blessings; there are other times when despotism alone can confer the ephemeral enjoyment of them. The men who prize freedom only for such things as these are not men who ever long preserved it."

"That which at all times has so strongly attached the affection of certain men is the attraction of freedom itself, its native charms independent of its gifts—the pleasure of speaking, acting, and breathing without restraint, under no master but God and the law. He who seeks in freedom aught but herself is fit only to serve."

"There are nations which have indefatigably pursued her through every sort of peril and hardship. They loved her not for her material gifts; they regard herself as a gift so precious and so necessary that no other could console them for the loss of that which consoles them for the loss of everything else. Others grow weary of freedom in the midst of their prosperities; they allow her to be snatched without resistance from their hands, lest they should sacrifice by an effort that well-being which she had bestowed upon them. For them to remain free, nothing was wanting but a taste for freedom. I attempt no analysis of that lofty sentiment to those who feel it not. It enters of its own accord into the large hearts God has prepared to receive it; it fills them, it enraptures them; but to the meaner minds which have never felt it, it is past finding out."

The closing sentence of M. de Tocqueville's volume implies that he intends following out this subject by a treatise on the Revolution itself, and the state of society it has produced. Doubtless it is difficult for a political historian to avoid treading on the ashes of a recent controversy. But in the case of M. de Tocqueville, the historical researches will be accepted with gratitude, however the reader may be disposed to question the accuracy of his political parallels.

It is needless to say how anxiously such a production will be looked for. Nor can a better interpreter be met with than Mr. Henry Reeve, whose translation, always in-

telligent and masterly, is in many places ingenious and eloquent, and rarely, if ever, displays traces of its foreign origin.

Bothwell. A Poem. In Six Parts. By W. Edmondstone Aytoun, D.C.L., Author of 'Lays of the Scottish Cavaliers.' Blackwood and Sons.

THE eventful life of Mary Queen of Scots has furnished almost as much employment for the dramatists, poets, and novelists, as for the historians. The doubts which lie in the recesses of some parts of her melancholy story, and the conflicting nature of the evidence through which we are compelled to sift the principal facts, and the characters of the actors in them, are highly favourable to a fanciful treatment of the subject. Where the gravest authorities differ so widely, the poet is free to present the details in any aspects that will best suit his purpose; nor does he incur much risk of violating historical truth in the relation of incidents which will, probably, never be entirely removed out of the region of controversy. Professor Aytoun, however, in selecting Queen Mary as the heroine of his poem, and Bothwell as its hero, has not availed himself of a license which, under the control of his careful judgment, might have been safely exercised. He approaches his undertaking in a thoroughly conscientious spirit, keeps close to the main thread of the well-known events throughout, and never makes any excursions off the beaten highway of history, nor ventures even to fling a poetical drapery over his figures. Had he been writing a responsible narrative, instead of constructing an elaborate lay, he could hardly have been more accurate in his statements, although he would have felt it necessary to have observed a different method in the proportions he assigns to the several divisions of the action. He adopts the popular, and probably the true view of the character of Mary, and the persons who occupied prominent positions around her. She is depicted as a model of grace and beauty, amiable, virtuous, and gentle; in high contrast with the cruel, vain, jealous, and heartless Elizabeth. Darnley, fickle, childish, and weak, is held up to contempt; and Bothwell, in spite of some fine traits gratuitously thrown in to lighten the effect, is upon the whole rendered sufficiently odious and repulsive; and, although he is allowed to tell his own story, the moral deformities of his nature are fully brought out—his savage ferocity, his indomitable pride, mixed up with meanness, and that infirmity of purpose which, perpetually oscillating between two extremes, produced a hybrid monster, compounded of the criminal and the dupe.

The career of Bothwell, in relation to Queen Mary, is so familiar to most readers that we need not enter into its details. The chief points touched upon in the poem may be thus briefly sketched. After the death of her first husband, Francis II., Bothwell was one of the Scottish nobles who proffered allegiance to her before she retired from France. He appears to have preserved his fidelity for a certain period subsequent to her marriage with Darnley; but, after the assassination of Rizzio, he joined in the conspiracy against Darnley, for whose murder he was tried, and acquitted through the sheer force of his influence. He next entered into a conspiracy against Mary herself, forming a league or band with the nobles, who, to advance their

own purposes, pledged themselves to support his suit for the hand of the Queen. The abduction of Mary, her forcible detention in the Castle of Dunbar, and her marriage with Bothwell, followed rapidly, and was still more rapidly succeeded by the revolt of the nobles. Within one month of the day of his marriage, Bothwell was compelled to fly from Scotland, and, attempting to escape by sea, he was seized by a Danish man-of-war, under a suspicion of piracy. At first he refused to acknowledge who he was; but concealment was not long possible. The Regent Murray demanded that he should be given up, on the grounds that he had been adjudged guilty of the murder of Darnley. The King of Denmark, however, declined to accede to that demand, and compromised the matter by placing Bothwell in close confinement in the fortress of Malmoe. His crimes were great, and their expiation was fearful. After lingering ten years in the horrible solitude of his dungeon, the strong bad man was broken down at last, and closed his wretched life in madness. Such are the historical materials upon which the poem is founded.

It is divided into six parts, or cantos. The first glances at Bothwell's early knowledge of the Queen in France, hinting at the love with which her beauty inspired him; and then, passing over to Scotland, relates the murder of Rizzio. The second describes Bothwell's combat with the Border marauder, Elliot of the Park, an episode slightly connected with the main story, which is resumed by unfolding the conspiracy against Darnley. The third contains the murder of Darnley; the fifth, the abduction and the marriage; and the sixth, the rising of the nobles and the flight of Bothwell. The form of the poem is thus announced by the author:—

"The scene of this poem, which is in the form of a monologue, is laid in the fortress of Malmoe, where Bothwell was confined."

In other words, the poem is a long soliloquy, or meditation, in which Bothwell, after having endured three years of solitary imprisonment, as we gather from the opening of the third part, takes a retrospect of his past life. The guilty deeds and strange vicissitudes called up from the depths of his memory, the utter hopelessness of the circumstances under which he confesses himself to the blank walls of his dungeon, and the sullen despair that grows darker and darker as he lives over again his bold and criminal career, invest the theme with a solemnity fitted for the severe genius of Daniel or Buckhurst. We expected to find this tragical history narrated in the weighty stanza of the 'Civil War,' or the 'Mirror for Magistrates'; and great, we confess, was our surprise to discover that Professor Aytoun had selected, as the vehicle of his prison monologue, the old jaunty ballad measure, varied occasionally by an infusion of octo-syllabic passages. With what success he has applied this species of verse to a subject which, at first sight, would seem to be singularly unsuited to it, we will give the reader ample means of judging for himself.

The measure may be at once exemplified by the beginning of a passage describing the character of Darnley. The lines are marked by the lyrical ebb and flow of the early ballad:—

"She wedded Darnley—and a fool
In every sense was he,
With scarce the wit to be a knave
If born in low degree."

But folly, when it walks abroad
In royal guise and strain,
Will never lack for knavery
To loiter in its train."

Here is a picture of Queen Elizabeth. Bothwell is endeavouring to account for the defection of the Scottish nobility by referring it to the influence of the English queen. Had Scotland stood alone, they would have been true to their sovereign and themselves:—

"But at the gate the Temptress stood,
Not beautiful nor young;
Nor luring, as a Syren might,
By magic of her tongue;
High and imperious, stately, proud,
Yet artful to beguile,
A woman, without woman's heart,
Or woman's sunny smile:
By nature tyrannous and vain,
By king-craft false and mean—
She hated Mary from her soul,
As woman and as Queen!"

The introduction to the description of the murder of Rizzio possesses the merit of exciting curiosity in no ordinary degree:—

"'Twas night—mirk night—the sleet beat on,
The wind, as now, was rude,
And I was lonely in my room
In dreary Holyrood.
I heard a cry, a tramp of men,
A clash of steel below,
And from my window, in the court
I saw the torches glow.
More common were such sounds to me
Than hum of evening hymn;
I caught my sword, and hurried out
Along the passage dim.
But O, the shriek that thrilled me then—
The accents of despair,
The man's imploring agony,
The woman's frantic prayer!"

The sequel is feeble, and an excellent opportunity for the display of descriptive power is wasted upon the melodramatic appeals of the Queen to spare her favourite.

Of a higher order is the opening of the next canto. Bothwell looks out upon the sea, but there is nothing there to remind him of the past; and he is cast back upon his own thoughts, which recall the hills and the heather of his mountain home. The whole passage is extremely affecting:—

"The sun is bright, the day is warm,
The breeze is blowing free—
Come, I will rouse me from my lair,
And look upon the sea:
'Tis clear and blue, with here and there
A little fleck of foam;
And yonder glides a stately ship,
Bound on her voyage home.
The fishers, on the scanty sward,
Spread out their nets to dry,
And whistle o'er their lazy task
In happy vacancy.
Swift by the window skims the tern,
On light and glancing wing,
And every sound that rises up
Gives token of the spring.
Fair is the sight, yet strange to me;
No memories I recall,
While gazing on the headland cliffs,
And waves that leap and fall;
No visions of my boyish days
Or manhood's sterner prime
Arise from yonder watery waste,
To cheer me for a time.

"For I was reared among the hills,
Within a Border home,
Where, sweeping from their narrow gleens,
The mountain torrents come;
And well I know the bonny braes
Where the first primrose blows,
And shrieking tufts of violets
Rise from the melting snows,
Ere yet the hazel leaf is out,
Or birches grow their green,
Or, on the sad and sullen ash,
A kindling bud is seen.
O, Hermitage, by Liddell's side,
My old ancestral tower!
Were I again but lord of thee—
Not owning half the power
That in my days of reckless pride
I held, but east away—
I would not leave thee, Border keep,
Until my dying day!"

On the night appointed for the murder of Darnley, there is a revel at Holyrood. The hour settled upon for firing the house, in which Darnley sleeps is two o'clock. The

Queen has just been visiting her husband, and has taken leave of him, the chief conspirators accompanying her to the palace. Then follows the gay riot of the unsuspecting court, Bothwell moving like fate in the midst of them, waiting for the moment when he is to go forth to accomplish his deadly purpose. All this is very strikingly depicted:—

"Back, back to Holyrood! away!
Then torches flashed, and yeomen came,
And round the royal litter closed
A gleaming zone of ruddy flame.
I have slight memory of that walk—
Argyle, I think, spoke earnestly
On state affairs, but of his talk
Not any word remains with me.
We came to Holyrood; and soon
A gush of music filled the hall;
The dance was set; the long saloon
Glowed as in time of carnival:
O, hateful to me was the sound,
And doubly hateful was the light!
I could not bear to look around,
I longed to plunge into the night.
A low dull boom was in mine ear,
A surging as of waters pent;
And the strained sense refused to hear
The words of passing merriment.
What if that Babel should be stilled,
Smote dumb, by one tremendous knell?
What if the air above were filled
With clanging from the clocks of hell?
Yet waited I till all was o'er;
The bride withdrew, the masque was done;
And as I left the porter-door,
Dully the palace bell struck, One!"

Admirably conceived, too, is the guilty fear with which the murderer steals out of the palace and up the Canongate on his way to the Kirk-of-Field, where the tragedy is to be enacted:—

"I heard the echo of my foot,
As up the Canongate I sped,
Distinct, as though in close pursuit
Some spy kept even with my tread.
Or did I run, or did I pause,
The sound was ever hickering near;
And though I guessed full well the cause,
I could not free myself from fear.
I almost stumbled in the dark
Upon a houseless, vagrant hound,
And his sharp snarl, and sudden bark,
Made my heart leap, and pulses bound.
Wherever there were lights on high,
Methought there stood some watcher pale—
Long shadows seemed to flitter by,
I heard low voices mourn and wail.
And I could swear that once I saw
A phantom gliding by the place
Where then I stood. I shook with awe—
The face was like my mother's face,
When last I saw her on her bier!
Are there such things? or does the dread
Of coming evil craze our fear,
And so bring up the sheeted dead?"

But here, again, as in other places, the machinery of preparation ends in disappointment. The burning of the house, and the death of Darnley, about which so much expectation is excited, are poor and meagre. The poet builds porticoes to hovels.

The aspect of the Pentland hills on the morning of the abduction is a charming bit of description, skillfully contrasted with the vile business that carried Bothwell into their tranquil solitude:—

"Methinks I can recall the scene,
That bright and sunny day;
The Pentlands in their early green
Like giant warders lay.
Upon the bursting woods below
The pleasant sunbeams fell;
Far off, one streak of lazy snow
Yet lingered in a dell.
The westlin' winds blew soft and sweet,
The meads were fair to see;
Yet went I not the spring to greet
Beneath the trying-tree.
"For blades were glistening in the light,
And morions flashing clear:
A thousand men in armour bright
Were there with jack and spear.
A thousand men, as brave and stout
As ever faced a foe,
Or stemmed the roaring battle-tide
When fiercest in its flow."

This canto closes with the marriage, characteristically darkened by an omen congenial to the superstitions of the age:—

"Warned by the past, I would not wait
Till Mary breathed again.
I did not ask for idle state,
For gathering of the proud and great,
Or pomp of nuptial train.
I spoke the word—she made me Duke.
I claimed her hand the self-same day;
And though like aspen-leaf she shook,
And wan and piteous was her look,
She did not answer, Nay!"

"All was accomplished. By my side
The Queen of Scotland knelt, a bride.
In face of Holy Kirk, her hand
Was linked with mine in marriage band;
Her lips pronounced the solemn word;
I rose, her husband and her lord!
And now, what lacked I more?
Around me thronged the guests to pay
Their duty on the wedding-day:
Proud and elate, I smiled on all
As master in that royal hall.
Scarcely had I spoke, when clashing fell
A weapon on the floor:
I trembled, for I knew it well—
The sword that Darnley wore."

His subsequent life of terror, smitten secretly by ghastly remorse, is thus brought vividly before us:—

"I had no peace; if peace it be
To rest unscared, to wake secure,
To let the fancy wander free,
Or dream of pleasant things and pure:
To take sweet counsel with a friend,
Or, dearer, with a loving wife,
And sometimes gladly to unbend
The strained and weary bow of life.
Broken and feverish was my sleep,
For, all night long, within my room
Methought I heard the murderers creep,
And voices whisper through the gloom.
Nor, when the ghastly night was o'er,
Content or respite did I win,
For guilt stood sentry at the door,
And challenged all who ventured in.
In fear I slept—in fear I woke—
In fear I lingered out the day;
Whatever lord or courtier spoke,
I thought was uttered to betray.
I had no friends, save those whose fate
A common danger linked with mine—
Men who provoked the people's hate,
And roared, like ruffians, o'er their wine.
The burghers heard the noisy brawl
That scared the swallows from their eaves,
And mourned that Scotland's royal hall
Should thus be made a den of thieves."

Then follows the rising of the discontented nobles, and the departure of Bothwell and the Queen for Carberry, where they were destined to separate for ever. This description, and the whole of the ensuing scene, constitute the most successful part of the poem:—

"I know not why; but o'er my soul,
That eve, the self-same bodement stole
That thrilled me with a sad presage
When last I gazed on Hermitage.
The troopers in procession wound,
Along the slant and broken ground,
Beneath old Arthur's lion-hill.
The Queen went onward with her train;
I rode not by her palfrey's rein,
But lingered at the tiny rill
That flows from Anton's fane.
Red was the sky; but Holyrood
In dusk and sullen grandeur stood.
It seemed as though the setting sun
Refused to lend it light,
So cheerless was its look, and dun,
While all above was bright.
Back in the glare rose spire and vane,
No lustre streamed from window-pane;
But, as I stood, the abbey bell
Tolled out, with such a dismal knell
As smites with awe the shuddering crowd,
When a king's folded in his shroud—
Methought it said, Farewell!"

"So passed we on. The month was June;
We did not need the lady moon
To light us onwards on our way
Through thickets white with hawthorn spray;
Past old Dalhousie's stately tower,
Up the lone Esk, across the moor,
By many a hamlet, many a spring,
Byholt, and knowe, and fairy ring,
By many a noted trysting-place,
We held our course, nor slackened our pace,
Till far away beyond the road
The lights in Borwick Castle showed.
Short tarrying had we there, I woen!
Again we sought the woodlands green;
For fiery Home was on our track,
With thousand spearmen at his back:
Nor dared we rest, till from Dunbar
I gave the signal for the war."

For animation in the details, and com-

pleteness in the execution, the closing canto is incomparably the finest of the whole. It is sustained throughout at a height of dramatic interest which is never reached elsewhere, and, like the last canto of *Marmion*, redeems in a great measure the occasional tediousness and inequality of treatment which the most careless reader cannot fail to be struck by in the previous parts.

That there is very considerable merit, and merit of various kinds, in this poem, must be sufficiently obvious from the extracts we have given. But the merit is not in the conduct of the story, nor in the selection of the form through which it is related. Throughout the entire of the first five sections, the culminating situations of the narrative are resolved into vanishing points. The poet leads up to his important scenes with a tantalizing artfulness in the arrangement of the preliminaries, which only enhances the subsequent sense of failure. In making Bothwell the narrator, it may be doubted whether the author has adopted the most judicious course. It inevitably limits the scope and freedom of the treatment, and throws a certain colouring of individual feeling over the whole, which imparts more or less monotony to the expression. Had the author related the story in his own person, he would unquestionably have gained more breadth, more picturesqueness, and more variety. Under any circumstances it would have been impossible to create a sympathy for so base a culprit; but the difficulty is inculcatedly increased by presenting him in the confessional. The capricious irregularities of the verse, which might have been made susceptible of striking effects in a different form, are utterly inconsistent with the shape into which the narrative is thrown. We do not exact from poetry a rigid adherence to the modes of real life; but some show of fitness should be observed in adapting the vehicle to the sentiment. The reader's imagination is unnecessarily strained in the attempt to reconcile the smooth flow and light sparkle of the versification with the gloomy reveries of a man lying in prison under so heavy a weight of terrible reminiscences. It is as easy to conceive that Bothwell would have danced a coranto in his dungeon, as that he would have communed with his guilty soul in this fashion.

These may be considered cardinal faults. There are others of less magnitude. Although the diction is almost uniformly pure, there are some slight blemishes here and there. Thus, speaking of the flattery addressed to Queen Elizabeth, which was contradicted by her mirror:—

"Each morn and eve, her mirror gave
Their wretched words the lie;
And though she fain would have believed,
She could not close her eye."

Here is an example of inelegance, we are bound to say of rare occurrence:—

"A wretch, who paradise resigned,
To wallow in a sty!"

Again, Mary looking back on her union with Darnley:—

"His life had been a course of wrong,
A hideous shadow on her wall."

Bothwell sees a kingly crown in a dream, but it suddenly disappears in the following singular manner:—

"Spire and crown
Shut, like the lightning's leap."

Granting the most liberal latitude to poetical flights, the confusion of grammar and images in the subjoined quotation admits of no appeal to the forbearance of criticism:—

"But woman's hate runs deeper far,
Though shallower at the spring;
Right seldom is it they forget
The shaft that galled their wing."

There is one conspicuous excellence in this poem. It is entirely free from affectation and finery. Manly, clear, and fluent, it goes direct to its business throughout. The language is natural, and is chosen from a wide vocabulary. There are no traces of poverty, either of expression or invention. It is everywhere fresh and natural; often picturesque and sweet to its core; and there are many passages in it of remarkable beauty and tenderness. We have only to regret that the author did not give a freer range to his powers, and, casting aside the rigorous trammels of history, trust a little more to the impulse of his genius. For this reason, and because they set up a test by which to try the accuracy of his facts, we cannot help regarding his copious notes as a grievous hindrance to the enjoyment of the reader. They fulfil the function of the death's head at the banquet.

First Footsteps in East Africa; or, an Exploration of Harar. By Richard F. Burton, Bombay Army. Longman and Co. The adventurous pilgrimage to Mecca and Medina has made the name of Burton renowned in the annals of modern travel ('L. G.', 1855, p. 499; 1856, p. 35). To scientific and official authorities he was already well known by his travels in Scinde, and it was as a volunteer to the Royal Geographical Society that he obtained leave from the East India Company to engage anew in an exploring expedition. In 1852, the sanction of the Court of Directors had been withheld, on account of the peril of the journey then projected, and Mr. Burton undertook the pilgrimage during his furlough on his own responsibility. Scarcely had he returned to Bombay, when he conceived the idea of carrying out an exploring expedition of a more perilous kind in Eastern Africa. In 1849, the late Vice-Admiral, Sir Charles Malcolm, formerly superintendent of the Indian navy, in conjunction with Mr. William T. Hamilton, the President of the Geographical Society, made an application to the Court of Directors, to ascertain the productive resources of the unknown Somali country, the region on the west of the southern waters of the Red Sea, and occupying the whole of the eastern peninsula, from the north of Bab-el-Mandel to several degrees south of Cape Guardafui. In the interior, the Somali country extends to within a few miles of the city and territory of Harar, a place unvisited by any Europeans, and known only by report as "the ancient metropolis of a once mighty race, the only permanent settlement in Eastern Africa, the reported seat of Moslem learning, a walled city of stone houses, possessing its independent chief, its peculiar population, its unknown language, and its own coinage, the emporium of the coffee trade, the head-quarters of slavery, the birth-place of the Kat plant, and the great manufactory of cotton-cloths."

An expedition was projected under the superintendence of Commodore Lushington and Dr. Carter, in 1851, but circumstances prevented its being carried out. On his return from El Hajaz to Bombay, Mr. Burton, as we have already stated, proposed to revive the Somali exploring expedition, and to penetrate, *via* Harar and Gananah, to

Zanzibar. His plans were favourably received by Lord Elphinstone, and supported by those who knew how well Burton was fitted by his enterprise and judgment for so perilous an undertaking. Leave was obtained from the Court of Directors to organize the expedition. The death of Assistant-Surgeon Ellerton Stocks, an accomplished botanist, from whom much was expected, led to some modification in the purposes of the journey. It was resolved to make the geography and commerce of the Somali country the chief objects of investigation. Having secured the services of Lieutenant William Stroyan, of the Indian navy, an experienced and skilful surveyor, and being accompanied by Lieutenant Herne and Lieutenant J. H. Speke, of the Indian army, Burton was at Aden, ready for starting in October, 1854.

The plan at first was to march in a body, using Berberah as a base of operations, westwards towards Harar, and thence in a southeasterly direction towards Zanzibar. The danger of this route was so strongly represented at Aden, that the political resident refused to countenance the scheme, and a change of plans was necessitated. Lieutenant Herne was directed to proceed to Berberah after the season of the annual fair, and endeavour to form friendly relations with the Somali tribes. "Lieutenant Herne, who on the 1st of January, 1855, was joined by Lieutenant Stroyan, resided on the African coast from November to April; he inquired into the commerce, the caravan lines, and the state of the slave trade, visited the maritime mountains, sketched all the places of interest, and made a variety of meteorological and other observations, as a prelude to extensive research." Lieutenant Speke was directed to land at Bunder Guray, and to endeavour to trace the Wady Nogal, which he failed to reach through the treachery of a guide. He obtained useful information, however, about the districts which he visited. Meanwhile Lieutenant Burton, assuming the disguise of an Arab merchant, prepared to visit the forbidden city of Harar.

Mr. Burton left Aden, Oct. 29, 1854, for the port of Zayla, on the Red Sea, where a month was spent in making a variety of arrangements for the journey:—

"Zayla commands the adjacent harbour of Tadjurah, and is by position the northern port of Aussa (the ancient capital of Adel), of Harar, and of southern Abyssinia: the feuds of the rulers have, however, transferred the main trade to Berberah. It sends caravans northwards to Dankali, and south-westwards through the Eesa and Gudabirsi tribes as far as Efat and Gurague. It is visited by Cafilas from Abyssinia, and the different races of Bedouins, extending from the hills to the sea-board. The exports are valuable—slaves, ivory, hides, honey, antelope horns, clarified butter, and gums: the coast abounds in sponge, coral, and small pearls, which Arab divers collect in the fair season. In the harbour I found about twenty native craft, large and small: of these, ten belonged to the governor. They trade with Berberah, Arabia, and Western India, and are navigated by 'Rajput' or Hindu pilots.

"Besides a large floating population, Zayla contains about 1500 souls. They are comparatively a fine race of people, and suffer from little but fever and an occasional ophthalmia. Their greatest hardship is the want of the pure element: the Hasi or well, is about four miles distant from the town, and all the pits within the walls supply brackish or bitter water, fit only for external use. This is probably the reason why vegetables are unknown, and why a horse, a mule, or even a dog, is not to be found in the place."

Of the author's life in Zayla a strange account is given in this report of part of each day's proceedings:—

"At 6 A.M. we descend to breakfast, which usually consists of sour grain cakes and roast mutton—at this hour a fine trial of health and cleanly living. A napkin is passed under my chin, as if I were a small child, and a sound scolding is administered when appetite appears deficient. Visitors are always asked to join us: we squat on the uncarpeted floor, round a circular stool, eat hard, and never stop to drink. The appetite of Africa astonishes us; we dispose of six ounces here for every one in Arabia,—probably the effect of sweet water, after the briny produce of the 'Eye of Yemen.' We conclude this early breakfast with coffee and pipes, and generally return, after it, to the work of sleep.

"Then, provided with some sanctified Arabic book, I prepare for the reception of visitors. They come in by dozens,—no man having apparently any business to occupy him,—doff their slippers at the door, enter wrapped up in their Tobes or togas, and deposit their spears, point upwards, in the corner; those who have swords—the mark of respectability in Eastern Africa—place them at their feet. They shake the full hand (I was reproved for offering the fingers only); and when politely disposed, the inferior wraps his fist in the hem of his garment. They have nothing corresponding with the European idea of manners: they degrade all ceremony by the epithet Shughl el banat, or 'girls' work,' and pique themselves upon downrightness of manner,—a favourite mask, by the by, for savage cunning to assume. But they are equally free from affectation, shyness, and vulgarity; and, after all, no manners are preferable to bad manners.

"Often I am visited by the Topchi-Bashi, or master of the ordnance,—half a dozen honey-combed guns,—a wild fellow, Bashi Buzuk in the Hejaz and commandant of artillery at Zayla. He shaves my head on Fridays, and on other days tells me wild stories about his service in the Holy Land; how Kurdi Usman slew his son-in-law, Ibn Rumi, and how Turckeh Bilmez would have murdered Mohammed Ali in his bed. Sometimes the room is filled with Arabs, Sayyids, merchants, and others settled in the place: I saw nothing amongst them to justify the oft-quoted saw, 'Koraysh pride and Zayla's boastfulness.' More generally the assembly is one of the Somali, who talk in their own tongue, laugh, yell, stretch their legs, and lie like cattle upon the floor, smoking the common Hukkah, which stands in the centre, industriously cleaning their teeth with sticks, and eating snuff like Swedes. Meanwhile, I occupy the Kursi or couch, sometimes muttering from a book to excite respect, or reading aloud for general information, or telling fortunes by palmistry, or drawing out a horoscope."

"It argues peculiarity, I own, to enjoy such a life," says the author, in writing to his friend, James Grant Lumsden, a member of the Bombay Council. But recollections of the dreary routine of civilized "society" at Aden made this rough Somali life pleasant by contrast:—

"You will doubtless, dear L., convict me by my own sentiments, of being an 'amateur barbarian.' You must, however, remember that I visited Africa fresh from Aden, with its dull routine of meaningless parades and tiresome courts martial, where society is broken by ridiculous distinctions of staff-men and regimental-men, Madras-men and Bombay-men, 'European' officers, and 'black' officers; where literature is confined to acquiring the art of explaining yourself in the jargons of half-naked savages; where the business of life is comprised in ignoble official squabbles, dislikes, disapprobations, and references to 'superior authority'; where social intercourse is crushed by 'gossip,' and the scandal of small colonial circles; where—pleasant predicament for those who really love women's society!—it is scarcely possible to address a fair dame, preserving at the

same time her reputation and your own, and if seen with her twice, all 'camp' will swear it is an 'affair'; where, briefly, the march of mind is at a dead halt, and the march of matter is in double quick time to the hospital or sick-quarters. Then the fatal struggle for Name, and the painful necessity of doing the most with the smallest materials for a reputation! In Europe there are a thousand grades of celebrity, from statesmanship to taxidermy; all, therefore, co-exist without rivalry. Whereas, in these small colonies, there is but one fame, and as that leads directly to rupees and rank, no man willingly accords it to his neighbour. And, finally, such semi-civilized life abounds in a weary ceremoniousness. It is highly improper to smoke outside your bungalow. You shall pay your visits at 11 A.M., when the glass stands at 120°. You shall be generally shunned if you omit your waistcoat, no matter what the weather be. And if you venture to object to these Median laws,—as I am now doing,—you elicit a chorus of disapproval, and acquire some evil name."

But now we are *en route* for Harar, through the territory of tribes, the physical and moral portraiture of one of which is thus sketched. The Eesa is supposed to be the most numerous and powerful branch of the Sonali nation:—

"'Traitorous as an Eesa,' is a proverb at Zayla, where the people tell you that these Bedouins with the left hand offer a bowl of milk, and stab with the right. 'Conscience,' I may observe, does not exist in Eastern Africa, and 'Repentance' expresses regret for missed opportunities of mortal crime. Robbery constitutes an honourable man: murder—the more atrocious the midnight crime the better—makes the hero. Honour consists in taking human life: hyena-like, the Bedouins cannot be trusted where blood may be shed: Glory is the having done all manner of harm. Yet the Eesa have their good points: they are not noted liars, and will rarely perjure themselves: they look down upon petty pilfering without violence, and they are generous and hospitable compared with the other Somali. Personally, I had no reason to complain of them. They were importunate beggars, but a pinch of snuff or a handful of tobacco always made us friends: they begged me to settle amongst them, they offered me sundry wives, and,—the Somali Bedouin, unlike the Arab, readily affiliates strangers to his tribe,—they declared that after a few days' residence, I should become one of themselves.

"In appearance, the Eesa are distinguished from other Somali by blackness, ugliness of feature, and premature baldness of the temples; they also shave, or rather scrape off with their daggers, the hair high up the nape of the neck. The locks are dyed dun, frizzled, and greased."

Through the perils incident to merchants travelling through tribes of this character, the author at length reached Harar in safety, January 3, 1855. Previous to entering the city, for reasons told in the narrative, he adopted the bold resolution of throwing off his Arab disguise, and assuming the character of an envoy from the British political resident at Aden. The first interview with the Amir or Sultan of Harar passed off auspiciously:—

"The Amir, or, as he styles himself, the Sultan Ahmad bin Sultan Abihakr, sat in a dark room with whitewashed walls, to which hung—significant decorations—rusty matchlocks and polished fetters. His appearance was that of a little Indian Rajah, an etiolated youth twenty-four or twenty-five years old, plain and thin-bearded, with a yellow complexion, wrinkled brows and protruding eyes. His dress was a flowing robe of crimson cloth, edged with snowy fur, and a narrow white turban tightly twisted round a tall conical cap of red velvet, like the old Turkish headgear of our painters. His throne was a common Indian Kursi, or raised cot, about five feet long, with back and

sides supported by a dwarf railing: being an invalid he rested his elbow upon a pillow, under which appeared the hilt of a Cutch sabre. Ranged in double line, perpendicular to the Amir, stood the 'court,' his cousins and nearest relations, with right arms bared after the fashion of Abyssinia.

"I entered the room with a loud 'Peace be upon ye!' to which H. H. replying graciously, and extending a hand, bony and yellow like a kite's claw, snatched his thumb and middle finger. Two chamberlains stepping forward, held my forearms, and assisted me to bend low over the fingers, which however I did not kiss, being naturally averse to performing that operation upon any but a woman's hand. My two servants then took their turn: in this case, after the back was saluted, the palm was presented for a repetition. These preliminaries concluded, we were led to and seated upon a mat in front of the Amir, who directed towards us a frowning brow and an inquisitive eye.

"Some inquiries were made about the chief's health: he shook his head captiously, and inquired our errand. I drew from my pocket my own letter: it was carried by a chamberlain, with hands veiled in his Tobe, to the Amir, who after a brief glance laid it upon the couch, and demanded further explanation. I then represented in Arabic that we had come from Aden, bearing the compliments of our Daulah or governor, and that we had entered Harar to see the light of H. H.'s countenance: this information concluded with a little speech, describing the changes of Political Agents in Arabia, and alluding to the friendship formerly existing between the English and the deceased chief Abubakr.

"The Amir smiled graciously.

"This smile I must own, dear L., was a relief. We had been prepared for the worst, and the aspect of affairs in the palace was by no means reassuring."

Lieutenant Burton took advantage of his ten days' stay in the city to see all that he could, though he was too closely watched to make any exact scientific observations:—

"The present city of Harar is about one mile long by half that breadth. An irregular wall, lately repaired, but ignorant of cannon, is pierced with five large gates, and supported by oval towers of arless construction. The material of the houses and defences are rough stones, the granites and sandstones of the hills, cemented, like the ancient Galla cities, with clay. The only large building is the Jami or Cathedral, a long barn of poverty-stricken appearance, with broken-down gates, and two white-washed minarets of truncated conoid shape. They were built by Turkish architects from Mecha and Hodaydah: one of them lately fell, and has been replaced by an inferior effort of Harari art. There are a few trees in the city, but it contains none of those gardens which give to Eastern settlements that pleasant view of town and country combined. The streets are narrow lanes, up hill and down dale, strewn with gigantic rubbish-heaps, upon which repose packs of many or one-eyed dogs, and even the best are encumbered with rocks and stones. The habitations are mostly long, flat-roofed sheds, double storied, with doors composed of a single plank, and holes for windows pierced high above the ground, and decorated with miserable wood-work: the principal houses have separate apartments for the women, and stand at the bottom of large court-yards closed by gates of Holcus stalks. The poorest classes inhabit 'Gambisa,' the thatched cottages of the hill-cultivators. The city abounds in mosques, plain buildings without minarets, and in graveyards stuffed with tombs,—oblong troughs formed by long slabs planted edgewise in the ground. I need scarcely say that Harar is proud of her learning, sanctity, and holy dead. The principal saint buried in the city is Shaykh Umar Abadir El Bakri, originally from Jeddah, and now the patron of Harar: he lies under a little dome in the southern quarter of the city, near the Bisidimo Gate.

"Harar has not only its own tongue, unintelligible to any save the citizens; even its little population

of about 8000 souls is a distinct race. The Somali say of the city that it is a Paradise inhabited by asses: certainly the exterior of the people is highly unprepossessing.

"The Harari hold foreigners in especial hate and contempt, and divide them into two orders, Arabs and Somali. The latter, though nearly one third of the population, or 2500 souls, are, to use their own phrase, cheap as dust; their natural timidity is increased by the show of pomp and power, whilst the word 'prison' gives them the horrors.

"The other inhabitants are about 3000 Bedouins, who 'come and go.' Up to the city gates the country is peopled by the Gallas. This unruly race requires to be propitiated by presents of cloth; as many as 600 Tobes are annually distributed amongst them by the Amir."

Of the products and the commerce of Harar an interesting account is given:—

"Harar is essentially a commercial town: its citizens live, like those of Zayla, by systematically defrauding the Galla Bedouins, and the Amir has made it a penal offence to buy by weight and scale. He receives, as octroi, from eight to fifteen cubits of Cutch canvass for every donkey-load passing the gates, consequently the beast is so burdened that it must be supported by the drivers. Cultivators are taxed ten per cent., the general and easy rate of this part of Africa, but they pay in kind, which considerably increases the Government share. The greatest merchant may bring to Harar 50% worth of goods, and he who has 20% of capital is considered a wealthy man. The citizens seem to have a more than Asiatic apathy, even in pursuit of gain. When we entered, a caravan was to set out for Zayla on the morrow; after ten days, hardly one half of its number had mustered. The four marches from the city eastward are rarely made under a fortnight, and the average rate of their Kafilas is not so high even as that of the Somali.

"The principal exports from Harar are slaves, ivory, coffee, tobacco, Wars (safflower or bastard saffron), Tobes and woven cottons, mules, hdeus, wheat, 'Karanji,' a kind of bread used by travellers, ghee, honey, gums (principally mastic and myrrh), and finally sheep's fat and tallow of all sorts. The imports are American sheeting and other cottons, white and dyed, muslins, red shawls, silks, brass, sheet copper, cutlery (generally the cheap German), Birmingham trinkets, beads and coral, dates, rice, and loaf sugar, gunpowder, paper, and the various other wants of a city in the wild.

"Harar is still, as of old, the great 'half way house' for slaves from Zangaro, Gurague, and the Galla tribes, Alo and others: Abyssinians and Amharas, the most valued, have become rare since the King of Shoa prohibited the exportation. Women vary in value from 100 to 400 Ashrafis, boys from 9 to 150: the worst are kept for domestic purposes, the best are driven and exported by the Western Arabs or by the subjects of H. H. the Imam of Muscat, in exchange for rice and dates. I need scarcely say that commerce would thrive on the decline of slavery: whilst the Felateas or manrazzias are allowed to continue, it is vain to expect industry in the land."

From Harar the author made a rapid journey of five days' ride to Berberah. His first impressions of this place are strongly stated in contrasting it with the miserable site of Aden:—

"It was with astonishment that I reflected upon the impolicy of having preferred Aden to this place. The Emporium of Eastern Africa has a salubrious climate, abundance of sweet water—a luxury to be 'fully appreciated only after a residence at Aden'—a mild monsoon, a fine open country, an excellent harbour, and a soil highly productive. It is the meeting-place of commerce, has few rivals, and with half the sums lavished in Arabia upon engineer follies of stone and lime, the environs might at this time have been covered with houses, gardens, and trees.

"The Eye of Yemen, to quote Carlyle, is a 'mountain of misery towering sheer up like a bleak Pisgah, with outlooks only into desolation, sand, salt water, and despair.' The camp is in a 'Devil's Punchbowl,' stifling hot during nine months of the year, and subject to alternations of sandstorm and Simum, 'without either seed, water, or trees,' as Ibn Batutah described it 500 years ago, unproductive for want of rain,—not a sparrow can exist there, nor will a crow thrive,—and essentially unhealthy. Our loss in operatives is only equalled by our waste of rupees; and the general wish of Western India is, that the extinct sea of fire would, Vesuvius-like, once more convert this dismal cape into a living crater."

After returning to Aden to make some necessary preparations, Lieutenant Burton and his companions mustered at Berberah, April 7, 1855, for the more extended journey which they meditated. A sad catastrophe cut short the expedition. A night attack was made on the camp by a host of Somali robbers, and poor Stroyan lost his life in the fray. Burton, Herne, and Speke, after a gallant fight, reached the shore, severely wounded, Speke's escape being marvellous, "having walked and run at least three miles after receiving eleven wounds, two of which were from spears passing clean through his thighs." This was on the 19th April. The survivors, with their native attendants, set sail for Aden, after visiting the scene of the night's disaster, and recovering the body of their dead comrade.

The acting political resident at Aden demanded that the murderer of Lieut. Stroyan should be given up, and due compensation made for the losses by the plunderers. To enforce compliance, the H.E.I. Company's ships blockaded the coast, till the Somali offered 15,000 dollars indemnity, and reported that the murderer had been put to death by his tribe. More than this, however, the case demands. The remembrance of a temporary reverse must be wiped out, and the respect of the Arab tribes for the English name restored. It is only by punishing the guilty, and over-awing the lawless, that this can be accomplished. Mr. Burton and his companions are prepared to enter again on the expedition, and, if they are rightly supported by the authorities, the enterprise will not fail in their hands.

The occupation of the port of Berberah is urged strongly by Lieut. Burton, as being the true key to the Red Sea, the centre of African traffic, and the only safe place for shipping on the western shore of the Red Sea. The protection of the lives of British subjects upon this coast is a more unexceptionable reason. In 1825 the crew of the brig *Mary Ann* was murdered, and the severe punishment inflicted by the Bombay Government left a wholesome terror for a long period. The Somali have forgotten the lesson, and returned to their practices of pillaging and murdering strangers. Lieut. Burton reminds the Government, that were one of the Peninsular and Oriental steamers to be cast by any accident on this inhospitable coast, the lives of the passengers would be in peril, as well as the cargo attacked by the robbers.

An appendix contains the diary and observations made by Lieut. Speke, when attempting to reach the Wady Nogal; an outline is also given of the Harari language, with a vocabulary. Among the illustrations of the volume is a view of Harar, a portrait of its Sultan, and a map of the route of Lieutenant Burton.

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- A Phraseological Latin-English Dictionary.* By C. D. Yonge. Bentley.
- It is Never Too Late to Mend: a Matter-of-Fact Romance.* By Charles Beade, Author of 'Christie Johnstone,' 'Peg Woffington,' &c. 3 vols. Bentley.
- Zurich's Grandchild: a Novel.* By E. V. M. Sparling. 3 vols. Newby.
- Adelaide, Queen of Italy; or, the Iron Crown. An Historical Tale.* By William Bernard MacCabe. C. Dolman.
- Ben Suloester's Word.* By the Author of 'The Heir of Redclyffe.' J. C. Mozley.
- North Wales, or Venedotia: its Scenes, People, Legends, Classical, Historical, and Local Traditions.* By the Rev. R. W. Morgan. Hardwicke.

THE valuable repository of historical documents and illustrative comments now published in two volumes, under the title of *Memoirs of the Marquis of Montrose*, contains the substance of the previous works on the same subject, written and edited by Mr. Mark Napier—viz., *Montrose and the Covenanters, 1838; Life and Times of Montrose, 1840; and Memorials of Montrose, in the Maitland Club series, 1848 and 1850*, together with other results of the author's zealous and persevering researches in the same field of inquiry. A candid study of these *Montrose Memorials* will greatly modify many opinions now held concerning the Scottish troubles, if not lead to the history of that time being rewritten. We do not fully sympathize with Mr. Napier, either in his enthusiastic admiration of Montrose or in his vehement abuse of his political adversaries, but he has done much to place in a clearer light the leaders of the opposing parties. If he has redeemed the character of Montrose from some damaging calumnies, he has not yet succeeded in commanding for him all but universal respect, as Carlyle has done for his maligned hero, Oliver Cromwell. Mr. Napier betrays a bias rather political than biographical, when he says that the great Dundee, "the bloody Claverhouse" of Scottish tradition, will yet be redeemed, like Montrose, from a vulgar error of history. Among the illustrations of the present work are engravings of four original portraits of Montrose. Other portraits of near relatives of the Marquis are given, with authenticating descriptions. Many will wish that Mr. Napier, with his great zeal on the subject, had now written a brief popular history of Montrose, embodying the latest results of his learned and laborious researches. The story is one full of romance, whatever may be thought of the personal character of Montrose, and would bear a separate narrative, even after the brilliant sketches of Scott and Macaulay, and other historians. The present work is one for reference, not for reading.

The third volume of the *Life of Washington*, by Washington Irving, continues the story of the war of the Revolution down to the beginning of 1779, when Sir Henry Clinton was about to sail on his expedition to Charleston and South Carolina. The capitulation of General Burgoyne at Saratoga, in 1777, is one of the great events of this volume. Irving is not so striking in his accounts of battles and stirring scenes as in the narrative of the ordinary incidents that marked the Fabian career of Washington. The *Life* was originally announced as to be completed in three volumes, through a mistake of the American publishers, "who understood as a certainty what the author gave as a probability, and worded their advertisements accordingly." There are few who will complain of a book by Washington Irving being too long.

The story of the escape of Felice Orsini from the castle of S. Giorgio at Mantua, is almost too won-

derful to be true. We are tempted to believe that he owes his liberty to the connivance of some official, whom the present tale will help to shield from Austrian vengeance. But escapes as wonderful have been made, and there is nothing in the narrative of Orsini beyond the limits of possibility. That part of the book which describes and denounces the oppression under which Italy groans, will be read with deep sympathy in this country.

The Autobiography of James P. Beckwourth, as written from his dictation by Mr. Bonner, is a book of strange interest. In early life a wanderer from the States towards the far west, he became naturalized in the wilds, and was long the chief of the Crow tribe of Indians. He has now returned to civilized life, and settled at San Francisco, where Mr. Bonner heard his tale, the truth of which he believes, as "Beckwourth is personally known to thousands of people on both sides of the mountains."

The Handbook of Natural Philosophy, by Dr. Lardner, is now complete in four volumes—the first containing Mechanics; the second, Hydrostatics, Pneumatics, and Heat; the third, Optics; and the fourth, Electric Magnetism and Acoustics. Of the previous volumes we have from time to time spoken, as combining, in a remarkable manner, scientific knowledge with popular exposition. Dr. Lardner has always been noted for his ability and tact in effecting this, both in his lectures and in his books, and the present manual is admirably adapted for all who desire to attain "an accurate knowledge of physical science without the profound methods of mathematical investigation." A Handbook of Astronomy, in two volumes, is announced as in preparation, as a companion work to the Handbook of Natural Philosophy.

The Latin-English Dictionary of Mr. Yonge is in some respects the best that can be used by schoolboys. It has been compiled with special regard to the Latin books in most common use. All the words in the standard classics of the best age of Roman literature, from Lucretius to Ovid, will be found in it. From authors either of less note or less commonly read in schools, a selection only of words is given. In explaining peculiar phrases and idioms, passages where they occur are accurately cited and fully translated. The author frankly acknowledges that his dictionary is little more than an abridgment of that of Dr. Andrews, "by far the most copious and complete work of the kind that has yet been published in the language, with the exception of that vast Thesaurus usually known by the name of Facciolati's." Mr. Yonge has done well the work of selection, and also of revision and correction, for which the frequent errors and misprints of Dr. Andrews' book left ample field. The first part of the present work, the English-Latin Dictionary, was published last year.

The new novel by Mr. Charles Reade, author of 'Christie Johnstone,' 'Peg Woffington,' and other works in various departments of literature, has been looked for with some interest. As far as we have read, it is worthy of the writer's reputation, but we cannot venture to give a hasty opinion of what Mr. Reade himself, in the dedicatory address to the President, Fellows, and Demies of Magdalen College, Oxford, calls "a solid fiction." Being a matter-of-fact romance, what is deficient in entertainment may be partly set down to the author's desire to make his book also useful. It presents most faithful sketches of many phases of modern every-day life in England, and also at the diggings.

Zurriel's Grandchild is a lively and well-written novel, with striking incidents and strongly-marked characters. Old Zurriel, the Jew millionaire, dying unreconciled to his daughter, who had married a fortuneless soldier; Major Delorme's struggles with the world after the death of his wife, and the difficulties and crimes into which he was plunged; the affection of his only daughter, Zurriel's grandchild; and the adventures that befel her in the days of adversity—these are the starting-points of the tale. Besides the personages now named, the generous Mr. Lesparde, the mean Mr. Bradshaw,

the strong-minded Miss Enstridge, are well conceived and cleverly-sustained characters in the novel.

Of good short stories for young people, at once entertaining and useful, we note a deficiency in the present day. Some of our practised writers might well use their efforts in this direction. We have been much pleased with a little book by the author of 'The Heir of Redclyffe,' entitled 'Ben Sylvester's Word,' a tale which illustrates and inculcates the virtue of openness and truth-speaking. It is a cleverly and sensibly-written story, likely to have good influence wherever it is read.

The Treatise on Venedotia, or North Wales, by Mr. Morgan, promises to be a valuable miscellany of learned and curious information, in a popular form, about the scenes, people, legends, and traditions of the Principality. The author is zealous for the honour and fame of the Cymru, and his studies and pursuits qualify him for the task he has undertaken. The work is to be completed in seven parts, the first of which contains about a hundred pages.

New Editions.

The Dramatic Works of William Shakespeare. Edited, with Notes, by S. W. Singer, and *Critical Essays* by W. W. Lloyd. Vol. VIII. Bell and Daldy.
The Poetical Works of Alexander Pope: with Memoir, Critical Dissertations, and Explanatory Notes. By the Rev. George Gilfillan. Vol. II. Edinburgh: Nichol.
History of the Conquest of England by the Normans. By Augustin Thierry. Translated from the Seventh Paris Edition, by William Hazlitt. Vol. II. H. G. Bohn.

THE tenth volume of Singer's edition of Shakespeare contains *Titus Andronicus*, *Romeo and Juliet*, *Timon of Athens*, and *Julius Caesar*. Mr. Singer's prefaces and notes, as usual, are judicious and acceptable, and Mr. Lloyd's critical dissertations present a strange combination of valuable and of trivial matter. With regard to the authenticity of *Titus Andronicus*, Mr. Singer thus begins his preface:—"On what principle the editors of the first complete edition of Shakespeare's works admitted this play into their volume cannot now be ascertained. The most probable reason that can be assigned is, that he was instrumental in revising it, or in some way or other aided in bringing it forward on the stage." Mr. Lloyd says:—"Titus Andronicus is of impugned, but not, I think, of doubtful authenticity, as, in a modified sense, a work of Shakespeare." That parts of the play were re-written by Shakespeare from an earlier drama, Mr. Lloyd has no doubt, and the balance of evidence is in favour of this view, if we admit that it was one of the earliest of the adaptations.

The second volume of the works of Pope, in the Edinburgh Edition of the British Poets, contains the Moral Essays, Translations and Imitations, Prologues and Epilogues, Miscellanies, and the Dunciad. To this volume is prefixed an essay, by Mr. Gilfillan, on the genius and poetry of Pope, the general estimate appearing in the following sentences:—"He was unquestionably the poet of his age. But his age was far from being one of a lofty order: it was a low, languid, artificial, and lazily sceptical age. It loved to be tickled; and Pope tickled it with the finger of a master. It liked to be lulled, at other times, into half-slumber; and the soft and even monotonies of Pope's pastorals and 'Windsor Forest' effected this end. It loved to be suspended in a state of semi-doubt, swung to and fro in agreeable equipoise; and the 'Essay on Man' was precisely such a swing. It was fond of a mixture of strong English sense with French graces and charms of manner; and Pope supplied it. It was fond of keen, yet artfully managed satire; and Pope furnished it in abundance. It loved nothing that threatened greatly to disturb its equanimity or over-much to excite or arouse it; and there was little of this in Pope. Had he been a really great poet of the old Homer or Dante breed, he would have outshot his age, till he 'dwindled in the distance'; but in lieu of immediate fame, and of elaborate lectures in the next century, to bolster it unduly up, all generations would have 'risen and called him blessed.'" The allusion here is chiefly to Lord Carlisle's Essay on Pope, which Mr.

Gilfillan had previously criticized, and affirms to have been prepared partly for the purpose of justifying the Commissioners of the Westminster Palace for joining the name of Pope with those of Chaucer, Spenser, Shakespeare, and Milton. Mr. Gilfillan professes to take the *via media* between the extravagant praise of Byron and Carlisle, and the undue depreciation of Wordsworth, Coleridge, and Bowles. The notes do not add much to the critical or biographical lore associated with Pope's poems.

Miscellaneous, Pamphlets, &c.

English Grammar in Metre. By B. Revis. J. and C. Mozley.
The Essentials of the French Language. By W. J. Champion. Houston and Stoneman.
Criminal Lunatics: Are they Responsible? By J. Russell Reynolds, M.D. Churchill.
Capital Punishment: Speech. By William Ewart, M.P. J. Ridgway.
Royal Gallery of Art. Edited by S. C. Hall, F.S.A., &c. Part XVIII. Colnagui and Co.
Photographic Portraits of Living Celebrities. Executed by Maull and Polyblank. No. 4. J. A. Roebuck, Esq., M.P. Bogue.
The Gentleman's Magazine. New Series. No. 2, August. J. H. and J. Parker.

THE only conceivable reason for turning the rules of grammar into metre, is to assist the memory of pupils, but this is not likely to be effected by the uncouth rhymes of Mr. Revis, the committal and retention of which would be no easy task to young people.

Mr. Champion's little Handbook gives directions and instructions to those who are chiefly thrown upon their own resources in the study of the French language, and will be found a useful guide to the knowledge most essential for reading and writing with correctness and propriety. Pronunciation it is vain to profess to teach by book.

The plea of insanity in cases of legal responsibility is one which is continually forced upon public attention. It is hopeless to lay down any fixed rules on the subject. Every case must be decided by special circumstances, and though occasional mistakes may occur, the ends of justice will certainly be best attained by leaving to juries and to judges, aided by medical witnesses, the consideration of each case as it comes up. Dr. Reynolds endeavours to lay down some principles for general guidance. Some of them are sensible and good, but others are somewhat vague and doubtful. Thus, "The proof of sanity in an individual," says Dr. Reynolds, "is the concurrence of his opinions, beliefs, and choices with those of the race or nation to which he belongs." On this principle, "most noble Festus" was not far wrong in calling the apostle Paul a madman. Sanity has previously been defined to be "that normal state which results in the recognition or correct appreciation of things as they are." Some of the comments on this definition are confused and unsatisfactory, and the application of the definition would be difficult in cases of monomania, or unsoundness on one particular point, not always readily discovered, while on all other matters the sanity of the individual is unquestioned. However, there are many points, both as to the facts and the ethics of the whole question of criminal lunacy, ably discussed by Dr. Reynolds, and his essay deserves the attention of the medical and legal profession. Dr. Reynolds rightly concludes that the decision of juries, as representing the average judgment or common-sense of mankind, is the safest court on the question of sanity or insanity, leaving it to judges or other official authorities to determine the degree of responsibility and the punishment in case of criminality being found.

Mr. Ewart, in his Speech, advocates the repeal of the death punishment even for murder. "I have long," he says, "been convinced that the repeal of the punishment of death is in strict conformity with the precepts and the spirit of the Gospel; and I rejoice to think that such was the conviction of those early Christians on whom the first dawn of revelation still continued to shed its lingering light." Mr. Ewart affirms that the certainty of a lesser punishment would more effectively deter from crime than the threat of death, now so often not carried out.

The series of photographic portraits of living celebrities promises to contain a good selection of representative as well as distinguished men. Commencing with Owen as the representative of the science and Macaulay of the literature of the day, there was next given Robert Stephenson, whose name recalls the greatest engineering works of the age; and as politics must have a turn, Roebuck, in preference to any of the party leaders, is selected, as an independent politician, and one who has done good service to his country. A brief biographical memoir by Mr. Herbert Fry accompanies the portrait. In the next number the medical profession will be represented in the person of Sir Benjamin Brodie, Bart. The portraits, of the size of eight inches by six, are admirably executed. That of Mr. Roebuck is painfully like, presenting the anxious appearance with which recent years of care and ill health have clouded his once active and animated features. There is an air of thoughtful melancholy in the expression, combined with suppressed indignation, as if he were listening to some tale of the sufferings of the Crimean army through the neglect of the Government or the misconduct of the authorities.

The new series of the Gentleman's Magazine has commenced with spirit, and the venerable journal bids fair to run a fresh career of usefulness and honour. Strong as ever in antiquarian notices and obituary memoirs, Mr. Urban devotes more attention now to art, engravings and woodcuts illustrating the text of this department. The reviews and miscellaneous literary notices are also well kept up. The point, however, which leads us now to refer to our contemporary, is the appearance of a very interesting contribution to the history of periodical literature in the shape of an autobiography of Sylvanus Urban; the first section, in the first number of the New Series, narrated the story of his birth, and the second, in the magazine for this month, entitled the 'Poetry of my Youth,' contains some curious notes and memoranda of old times. The prize scheme of Mr. Cave for poems is described with much detail. John Duick and Moses Browne were long the laureates of St. John's Gate, and both were inhabitants of Clerkenwell. The poetry of Browne may be traced till the year 1750, soon after which he entered holy orders, and was presented by the Earl of Dartmouth to the vicarage of Olney, afterwards made classical by being the residence of Cowper. Mr. Urban, in recalling the history of these prize poems, says—"Through these several competitions answered the purpose of filling the poetical pages of the Magazine, and in a considerable measure that of promoting its sale, I must confess that the management of these business details proved abundantly perplexing and troublesome; and the uniformity of result in respect to the insuperable Mr. Moses Browne and his redoubtable lieutenant, Mr. John Duick, began to assume an appearance not easily defended from the remarks of jealousy and envy. Cave, therefore, was induced to relinquish the intention he had formed of continuing such prizes annually." The name of Samuel Johnson begins to appear in the narrative—"The year 1738 introduced to him a new coadjutor, by whose advice he was materially influenced. The sturdy sense of Samuel Johnson perceived that then, as it has generally been found in other times, no established reputations were inclined to embark their time and talents on the precarious chances of an anonymous competition. At the same time, Johnson brought his vigorous intellect to bear upon the general conduct of the Magazine; and his early services, whilst he was associating in London life with Richard Savage, and paying homage to the maiden effusions of Eliza Carter, are among the pleasantest of my reminiscences." A footnote contains a defence of Cave against Johnson's railery about the prizes—"Dr. Johnson was pleased to say that Cave, 'thinking the influence of fifty pounds extremely great, expected the first authors of the kingdom to appear as competitors, and offered the allotment of the prize to the universities.' These statements find no support in the various advertisements inserted by Cave in the Magazine; though Cave admits (Magazine

Extraordinary, p. 436) that 'the uncommonness of the proposal made several persons of genius (especially at the universities) imagine it could not be fairly executed.' 'But when the time came,' Dr. Johnson proceeds, 'no name was seen among the writers that had been ever seen before; the universities and several private men rejected the province of assigning the prize.' In all this, as I have already remarked, there is more disdain than accuracy. Johnson says nothing relative to the other prizes, of which the particulars are now related.' We look forward with interest to the next paper, in which Johnson will chiefly figure.

List of New Books.

Ahn's Latin Grammar, 12mo, cloth, 3s.
A. Kemp's Imitation of Christ, by T. Chalmers, 12mo, cloth, 2s. 6d.
Aytoun's (W. E.) Southwell, 8vo, cloth, 12s.
Early Ballads: Bell's English Poets, Vol. XXVII., fcap., cloth, 2s. 6d.
Encyclopædia Britannica, 8th edition, Vol. II., 4to, cl., £1 4s.
Engineers and Officials, 1838-1856, 8vo, 5s.
Garbutt's (E.) Prayers for Families, 12mo, cloth, 2s. 6d.
Handbook of Wilts, Dorset, and Somerset, 12mo, cloth, 6s.
Henderson's (W.) Plain Rules for Improving Health, 12mo, cl., 3s.
Hogg's (H.) Songs for the Times, 12mo, boards, 1s.; cloth, 1s. 6d.
Library of Biblical Literature, Vol. IV., 12mo, cloth, 1s. 6d.
McCabe's (W. B.) Adelaide, 12mo, cloth, 5s.
McDonald's Memoirs, by Rev. J. Mackay, fcap., cloth, 5s.
Mill's Logic, 2 vols. 8vo, 4th edition, cloth, £1 5s.
Moore's (D.) Family Duties, 12mo, cloth, 3s. 6d.
Nemesis Sacra, crown 8vo, cloth, 12s.
Perth's (P.) Memoir, 2 vols. 8vo, cloth, £1 1s.
Relative Rights of Employer and Employed, 12mo, cloth, 3s. 6d.
Richardson's (Dr.) English Dictionary, with Supplement, £4 14s. 6d.
Supplement to Ditto, 12s.
Winslow's (Mrs.) Memoir, by her Son, crown 8vo, new edit., 7s. 6d.

ARTICLES AND COMMUNICATIONS.

BRITISH ASSOCIATION.

THE meeting of the British Association at Cheltenham, favoured with the finest weather that has attended the annual congress of philosophers for many years past, is likely to be a very numerous gathering for a town of its magnitude. At the opening of private business in General Committee, for which a very limited number of qualified members usually arrive in time, from sixty to seventy were present. The proceedings were commenced by the President (Dr. Daubeny) calling upon the Secretary (Professor Phillips) to read the

Report of the Council.

1. The Council have the satisfaction of reporting the continued efficiency and progress toward higher usefulness of the Observatory at Kew, which, while it fulfils the original object of its foundation and readily takes up original research, is now a point of reference for standard instruments in meteorology, and auxiliary to the national service.

2. In conducting this establishment the Council have, in previous years, had the great benefit of the co-operation of the Royal Society, and the Report of the Committee of the Observatory, which is now laid on the table, will show that this highly valued co-operation is continued. The members will learn, from the Report, the final result of the correspondence between the Committee of the Observatory and the authorities of the Office of Public Works, concerning the Repairs of the Building and the laying on of Gas. The disadvantages which might have resulted from the unexpected issue of this correspondence have been removed by the prompt liberality of the Council of the Royal Society, who have advanced the necessary funds for immediately supplying the Observatory with Gas.

3. The Council suggests to the General Committee to tender its cordial thanks to the Royal Society for the effective assistance thus given to an institution in which both the Royal Society and the British Association recognise a powerful instrument of philosophical research.

4. The Council have the pleasure to forward another Report from the vigilant Committee, which asserts the interests of science in Parliament. By what means of a public nature the progress of science can be accelerated and assured; the benefits of science applied and extended; the position of the cultivators of science improved—these questions must strongly interest the Association, which at the outset declared its purpose to strive for the removal of all impediments of a public nature by which science is retarded. Recommending this Report of the Parliamentary Committee to the approbation of the General Committee, and the important subjects which it opens, to the serious deliberation of the Members, the Council beg to express their readiness to be instrumental in maturing and putting into action any measure which the Association may deem suitable, and in obtaining the co-operation of other scientific bodies to bring it to a good issue.

5. The Council may congratulate the Association on the progress made toward the fulfilment of the seventh recommendation in the Report of their Parliamentary Committee for 1854-55:—"That an appropriate building in some central situation in London should be provided at the expense of the nation, in which the principal scientific societies may be located together." Burlington House is now devoted to the

use of the Royal Linnean and Chemical Societies—a result due, in a great degree, to the patient and persevering efforts of the Royal Society.

6. The General Committee will learn with satisfaction that, according to the Report of the General Treasurer, the funds belonging to the Association, and invested in the names of the trustees, amount to 6000*l*. The Council suggests that it is desirable, for many reasons, to maintain a reserve of this kind, sufficient to meet unexpected contingencies which may arise in consequence of efforts for the advancement of science.

7. The Council has added to the list of Corresponding Members the following foreign men of science:—Dr. F. Cohn, Breslau; Prof. E. Fremy, Paris; Prof. A. Kalkbrenner, Würzburg; M. Florin, Liege; Prof. F. Lanza, Spoleto; M. E. Reigot, Paris; Prof. Retzius, Stockholm.

8. The Council has received letters of invitation to the Association to hold its next meeting in Dublin, from the Board of Trinity College, Dublin; the Royal Dublin Society; the Royal Irish Academy; the King and Queen's College of Physicians in Ireland; the Geological Society of Dublin; the Lord Mayor and Municipal Council of Dublin.

9. The Council has this day received letters of invitation to the Association to hold its next meeting in Manchester, from the Town Clerk of Manchester; the Manchester Geological Society; the Manchester Athenæum; the Manchester Statistical Society.

Report of the Kew Committee.

The Committee beg to submit the following Report of their proceedings since the meeting of the British Association at Glasgow:—

The instruments and apparatus sent by the Committee to the Royal Exhibition were returned to the Observatory in December last. The total expense incurred by the Committee in connexion with the Exhibition amounted to 4202 7*s*. 11*d*., exceeding by 462 7*s*. 11*d*. the sum of 4140 granted by the Board of Trade. This balance has since been repaid by the Board.

At the last meeting of the Association, your Committee presented a special Report relative to their application to Her Majesty's Government for the use of two acres of land contiguous to the Observatory, and the lighting of the building with gas—such applications having been made in consequence of the recommendation of the General Committee at the Liverpool Meeting. The Association is still compelled to pay the high rent of ten guineas per acre for the land. The Committee fully expected that this year they should have been enabled to report that the expense of lighting the Observatory with gas would have been defrayed by the Government. The President of the Board of Works at first intimated to the Committee that the subject would receive consideration, and subsequently that he would consider the propriety of including the amount in the estimates for the present year. On further application, however, this has been refused. A copy of the correspondence is annexed to this Report.

Your Committee have, however, the gratification of reporting, that on a representation of the circumstances being submitted by the Council of the Association to the President and Council of the Royal Society, the sum of 250*l*. from the Wollaston Fund was immediately placed at the disposal of the Committee, in order that no further delay from the want of funds should take place in effecting the long-desired object.

Much as the Committee may regret the refusal of the Board of Works to grant their request, they gladly avail themselves of this opportunity to express to Lord Wrottesley, and the Council of the Royal Society their thanks for the prompt manner in which the intimation was made to them that the money had been voted. It affords another proof how ready the Royal Society has ever been to forward and assist scientific investigations.

Mr. De la Rue has made a preliminary examination of one of the Hygienic object-glasses, namely, that of 122 feet focal length, and, so far as he has hitherto been enabled to judge, it would appear that this object-glass defines with tolerable precision; but he is not yet able to say whether it will be desirable to go to the expense of erecting the tower for celestial observations.

A paper by Mr. Welsh, descriptive of the Kew Standard Barometer, and of the apparatus and processes employed in the verification of barometers, has been communicated to the Royal Society by the Chairman, and is now being printed in the Transactions of the Society.

The following statement shows the number of meteorological instruments which have been verified at Kew during the past year:—

	Thermo- meters.	Baro- meters.	Hydro- meters.
For the Admiralty & Board of Trade, 300	90	100	
For the Portuguese Government ...	12	30	
For Opticians and others.....	170	35	
Total.....	530	137	100

On February 5, the Committee resolved—"That in consideration of the number of Barometers already verified at Kew having been sufficient to defray the preliminary expense of apparatus, the charge for verification shall in future be reduced to five shillings each instrument." Arrangements have been made with Messrs. Adie, Casella, and Negretti and Zambra, to have on hand a constant supply of verified marine meteorological instruments, and the public may be supplied through any respectable Optician in London or the country, at the following prices:—

For a Marine Barometer	£4 14 0
For a Set of Six Thermometers	2 2 0

Since the last Report, the Committee have disposed of 99 standard thermometers graduated at the Observatory. Of these, 14 have been made for Mr. Hopkins, to be employed

in his experiments on the effect of pressure upon the melting-points of solids. The charge on account of the graduation and distribution of these thermometers is arranged with the Government Grant Committee of the Royal Society, and consequently does not appear in the financial accounts of the Kew Committee.

A self-recording anemometer, for measuring the velocity of the wind on the plan of Dr. Robinson, has been completed at the Observatory by Mr. Beckley: it is erected upon the dome, and has been in regular operation since the 1st of January. Its performance is most satisfactory, the delicacy of its indications being so great, that during the last six months the whole period of "calm," as shown by the registrations, has been only four hours. It has not yet been possible to erect an apparatus for registering the direction of the wind, on account of difficulties arising from the anticipated use of the dome for the solar photographic telescope. The direction of the wind has, however, been observed five times daily from an ordinary vane.

Mr. Beckley has since submitted to the Committee a model of a new arrangement for a self-recording anemometer, in which the registration of both the direction and velocity of the wind (and also the fall of rain if desired) is obtained upon a single sheet of paper. This arrangement is much more compact in its design and less costly in construction than any other with which the Committee are acquainted. Mr. Beckley's model will be exhibited, and a description of it communicated to this Meeting.

A series of monthly determinations of the absolute horizontal force and of the magnetic dip were commenced in January, with instruments provided by General Sabine from his department at Woolwich. Some difficulties have been experienced by Mr. Welsh in the observations of the absolute horizontal force, owing to imperfections in the usual mode of suspension of the magnets during the observations of vibration. These difficulties he hopes soon to overcome by employing reversible collimator magnets, and by an improved mode of suspension.

A convenient apparatus has been constructed at the Observatory for the determination of the effect of temperature on magnets; with this apparatus the temperature coefficients of the magnets employed at the Toronto Observatory have been obtained. The scale of the unifilar, and the dimensions and weights of the *ascia* rings employed at the same Observatory, have been determined with reference to the Kew standards of length and weight.

Two dip circles, one for M. Hansteen, of Christiania, and the other for Dr. Pegado, of the Meteorological Observatory of Lisbon, have been examined and compared with the Kew instrument before being sent to those gentlemen. A 30-inch transit instrument, lent by General Sabine's department, has been erected in the south window of the old transit room. A clock by Shelton, the property of the Royal Society, is used with it.

Owing to alterations required in the dome in order to adapt it to the use of the solar photographic telescope, it has been necessary to remove the large electrical apparatus of Mr. Ronalds. An apparatus of smaller size, but on the same plan, has been erected on the side of the dome, by which atmospheric electrical phenomena can be determined in the same manner as heretofore. A new vane has also been constructed, having an indicating dial within the dome.

Dr. Halleur, who had for about six months assisted Mr. Welsh in the Observatory, having been appointed to a professorship in the New College of Engineering at Calcutta, left the Observatory in September last.

In February, the Committee, on the recommendation of Professor J. D. Forbes, engaged Mr. Balfour Stewart, of the Edinburgh University, as Assistant Observer, at a yearly salary of £80, with residence in the Observatory. Mr. Stewart commenced his duties on March 1st. The Committee regret having to report that the Observatory will shortly lose the services of this gentleman, who has recently been appointed an assistant to Professor Forbes: he will leave the Observatory on October 1st, previous to which the Committee hope to be able to appoint a successor.

The Committee refer with pleasure to an ingenious thermometer devised by Mr. Stewart, in which advantage has been taken of the difference of capillary force and friction in two tubes of different capacity connected with the same bulb, to measure the sum of the fluctuations of temperature. The instrument has been made at the expense of the Committee; a description of it has been communicated by Mr. Stewart to the Royal Society, and is printed in its 'Proceedings.'

Mr. Welsh reports most favourably as to the general attention evinced by Mr. Beckley and Mr. Macgrath in the discharge of their respective duties. Mr. Beckley's talent as a mechanical engineer renders his services of great value in an establishment where instances constantly occur of work requiring the highest skill being promptly and correctly executed: the assiduity of Mr. Macgrath has been such as to merit the entire approbation of Mr. Welsh.

Your Committee cannot close this Report without again recording their high opinion of the unremitting care and attention, as well as of the ability which has ever been displayed by Mr. Welsh, as the Superintendent of the Observatory; during the past year he was compelled for upwards of six weeks to be in Paris, in order to arrange the delivery of the valuable solar apparatus forwarded at the request of Her Majesty's Government by the Committee to the Paris Exhibition; but his arrangements were such, that the general business of the Observatory was not in any way suspended during his absence.

Your Committee have finally to report, that the total expenses of the Observatory were not in any way suspended during his absence.

Your Committee have finally to report, that the total expenses of the Observatory during the past year amount to £557 1s. 9d. In consequence of the Committee having received during the year the sum of £221 7s. 8d. for the verification of meteorological instruments, they have in hand a balance amounting to £290 4s. 6d.; they do not consider it

therefore necessary to apply to the Association for a larger sum than £350, to enable them to meet the expenses of the ensuing year.

By order of the Committee,
July 22, 1856. JOHN P. GASSIOTT, Chairman.

A general feeling of disappointment was manifested at the continued indifference of the Government in withholding the trifling aid requested towards sustaining the Observatory of Kew, which had proved of so much public usefulness; and a vote of thanks was proposed by Mr. Gassiot, the chairman of the Kew Committee, to Lord Wrottesley, for his zeal in procuring the assistance of the Royal Society.

Mr. Taylor, the Treasurer, then read his report of the finances of the Association:—

The General Treasurer's Account (Glasgow Meeting) to the 6th August, 1856, at Cheltenham, from 12th Sept., 1855.

RECEIPTS.		£	s.	d.
To Balance brought on from the last Account.....	817	1	8	
Life compositions at Glasgow and since	359	0	0	
Annual subscriptions do. do.	422	0	0	
Associates' tickets do. do.	1094	0	0	
Ladies' tickets do. do.	543	0	0	
Composition for future publications	5	0	0	
Dividends on Stock (12 months)	161	11	0	
Received for sale of 3 per cent. Consols at 95½	732	13	5	
From Sale of Publications, viz.,				
Reports of Meetings	99	13	0	
Catalogues of Stars and Doveclines ...	42	2	9	
	141	15	9	

£4276 1 10

PAYMENTS.		£	s.	d.
By paid expenses of Glasgow meeting, sundry Printing, Binding, Advertising, and Incidental Payments by the General Treasurer and Local Treasurers	349	6	7	
Printing Report of the Twenty-fourth Meeting, Engraving, &c.	607	19	2	
Paid for 3 per cent. Consols at 88	3000	0	0	
Salaries for 12 months	350	0	0	
Engraving, &c. for Report of Twenty-fifth Meeting. Maintaining the establishment of Kew Observatory—Balance of grant of 1854.....	75	0	0	
Grant of 1855	500	0	0	

Ornithological Synonymy	575	0	0	
Chemical Action of Light	100	0	0	
Periodical Phenomena	10	0	0	
Strength of Iron Plates	10	0	0	
Dredging and Dredging Forms	9	13	9	
Propagation of Salmon	10	0	0	
Balance at the Bankers'	192	5	5	
Balance in the hands of the General Treasurer and Local Treasurers.....	15	16	11	

208 2 4

£4276 1 10

The Association, it may be observed, has been able to add substantially to its funds out of the proceeds of its last year's meeting at Glasgow. The next document submitted to the Committee was the—

Parliamentary Committee Report.

We have the pleasure of announcing that one very important subject to which our labours have been directed has been materially advanced since the date of our last Report; we allude to the juxtaposition of the Scientific Societies of London in a convenient and central locality.

The main building at Burlington House has been placed by the Government at the disposal of the Royal Society, on the understanding that they accommodate the Linnean and Chemical Societies with Rooms therein; and the West Wing will be converted into a capacious Hall, which is to be occupied by the Royal Society at all times when it is not required for the examinations and public meetings of the University of London.

We trust that the period is not far distant in which permanent accommodation will be afforded to all the principal Scientific Societies in buildings to be erected near the same site, and in pursuance of some general plan.

Your Committee, however, anticipate most important advantages to Science from the present partial adoption by the Government of the principle of juxtaposition; and our Chairman has, in his address to the Royal Society on the occasion of their last Anniversary, alluded to the benefits likely to accrue from this salutary measure.

In the same Address also will be found a Summary of our labours since our complete organization in 1851, a perusal of which will show to what extent the proceedings of our Committee have justified the anticipations of those who promoted its formation.

During the past year two subjects have been referred to us—viz.:

1st. The question of the expenses incurred by Scientific Institutions not incorporated in appointing new trustees of their property, when vacancies occur. And, 2ndly, We were requested by your Council in January last to support an application to Parliament, in reference to lighting Kew Observatory with gas, when made by the Chief Commissioner of Woods.

The first subject above adverted to has been considered by

us, and we shall resume its discussion when an opportunity offers for remedying the evil.

With respect to the second, we must refer to the Report of the Kew Committee for an explanation of the reasons which have made it impossible for us to render that species of assistance, which was contemplated at the time when the reference was made to us.

The most important subject of last Report—viz., the question "whether any measures could be adopted by the Government or Parliament that would improve the position of Science or its cultivators?" has since its discussion at Glasgow been again considered by us; and during the last Session of Parliament it was brought before the House of Commons by Mr. Heywood, as an individual member of the House, and not as representing your Committee.

The discussion of our Report by the Committee of Recommendations at Glasgow in September last, the result of the debate which took place in the House of Commons on the occasion last referred to, and subsequent communications with members of the Legislature, have combined to convince us—

1. That men of science have as yet formed no definite opinion on the important question raised in the report.

2. That until such a result be attained, it is improbable that any important improvement will be effected in the position of Science or its cultivators either through the agency of the Government or Parliament.

It is desirable, therefore, that some measures should be adopted, which may be instrumental in inducing scientific men generally to apply their minds to the consideration of these questions, and to agree upon some definite proposals.

We, therefore, recommend that the subject should be again brought before the Committee of Recommendations. Meanwhile the General Committee will be gratified on learning that the importance of the question has been recognized by the Council of the Royal Society, who have referred its consideration to the Government Grant Committee. That Committee have appointed a Sub-Committee, consisting of the President and Officers of the Royal Society and seven other Members, who will meet on the 7th of October for the purpose of discussing the subject prior to the reassembling of the Society after the recess.

Your Committee recommend for the consideration of the General Committee, whether it would be expedient to relax the rule by which vacancies in our Committee must be filled up exclusively from Members of the British Association, so far as to admit Members of either House of Parliament, who have advanced the interests of Science.

Your Committee also recommend that two vacancies in our body, caused by the non-attendance of the Earl Cathcart and Sir J. V. B. Johnstone, Bart., during two consecutive years, be filled by the election of the Earl of Burlington and Lord Stanley, Member of Parliament for King's Lynn.

July 25, 1856. W. STOTTESLEY, Chairman.

Another vote of thanks was proposed to Lord Wrottesley, by Sir Roderick Murchison; and his lordship moved a resolution, which was immediately carried, to relax the rule requiring that members of Parliament must also be members of the British Association. By this change many of our legislators who take an interest in the promotion of science, but are yet unable to attend the annual meetings of the Association, may be induced to forward its views in Parliament.

The business of the General Committee was brought to a conclusion by the usual appointment of Sectional Officers, and of a Committee of Recommendations, and by the passing of a resolution, moved at the suggestion of Mr. R. Monckton Milnes, to change the name of the Section of Statistics to that of the Section of Economic Science and Statistics.

In the evening, the Duke of Argyll having resigned the chair, Dr. Daubeny delivered—

The President's Address.

Gentlemen of the British Association,—Exactly twenty years have elapsed since the time when, as one of the Local Secretaries of this Institution, at the Meeting held in Bristol, it became my province to lay before the Members present a Report on the progress of Physical Science, more especially with reference to the subjects that had been treated of in the last volume of our Transactions. And it was with no assumed feeling of humility that I expressed on that occasion my lively sense of the responsibility of the task imposed upon me, and of my own feeble qualifications for its execution. It is, however, with a much more pervading consciousness of my deficiencies that I appear at the present time, when addressing you as the President of this great body, I see before me similar duties committed to me to discharge. On the former occasion, indeed, I was at least encouraged by the reflection, that however eminent those who had preceded me in the drawing up of such reports might have been,—and doubtless there were amongst them some of our

most valued associates,—still, as the task had up to that time been confided to the Local Secretaries, it was one to which persons of humbler pretensions might aspire; nor was the general body likely itself to be compromised by any remarks that emanated from one of its subordinate officers. But I now stand before you in quite a different capacity, following as I do in the wake of a long train of distinguished individuals, several of whom, indeed, as was the case with my own immediate predecessor, added to the recommendation of extensive scientific and literary attainments, the *prestige* of exalted rank and eminent social position; whilst of the remainder many had been peculiarly marked out for such a post, either on the ground of their own contributions to science, or on that of the depth and range of their information in some of its highest departments. In my own case, on the contrary, I cannot but feel, that this important office has been imposed upon me, chiefly on account of my position as the Senior amongst the Professors of Physical Science in a neighbouring University, which doubtless deserves the gratitude of this Association, for the support rendered to it, when such fostering care was most needed, in the infancy of its existence. And if other reasons for the selection are sought for, I would refer it also to the accident of my birth, and to the partiality of my friends in the county where we are now assembled, to whom I flatter myself it may be a matter of satisfaction to see thus distinguished an individual whom they regard as one of themselves, and one too who owes his position in life, and his capability of indulging in those studies which here engage us, mainly to the good fortune of attaining, in the University alluded to, a Gloucestershire Fellowship. With respect indeed to any personal claims I have to prefer for occupying so distinguished a post, the most that could be alleged in my behalf is the having from the commencement of this Association done what I could to promote its success, and to enlist others in its service; persuaded, as I have ever been, that it could not fail to prove a most efficient instrument for the furtherance of scientific objects, not only through the direct influence of its meetings in promoting a friendly intercourse and a free interchange of opinions amongst those devoted to kindred pursuits, but also indirectly, by engaging the public in various useful undertakings, which science indeed might have suggested, but which the nation alone was capable of carrying into effect. And that these anticipations have been borne out by the result, would now seem to be generally admitted from the fact, that other Societies since organised in this country with a view to similar objects, have been uniformly framed after its model, and conducted upon principles which they have borrowed from this Institution. It is indeed rather remarkable, that the first idea of an Association of such a kind should have suggested itself only a year after death had deprived us of our three most distinguished philosophers,—for who had we then left to compare with Davy for the brilliancy and importance of his discoveries; with Young, for the singular union of almost universal acquirements with admirable powers of invention; and with Wollaston, for an acuteness of mental vision, which gave him the same advantage in the pursuits of science, which the naturalist armed with a microscope has over the unassisted observer? Just as in the animal economy the *vis medicatrix nature* sometimes makes an extraordinary effort to repair the damage inflicted by injury or disease; so it would seem as if Science, conscious of the loss she had sustained in the almost simultaneous extinction of her three brightest luminaries, endeavoured to make good the deficiency, by concentrating into one focus those that yet remained to light her onwards on her path. At any rate, the progress which the Natural Sciences have made since that period, although doubtless attributable to several concurrent causes, is a fact which must not be overlooked in estimating the services rendered by this Association to the cause of human advancement; nor can I in any better manner point out its value, than by bringing before your notice a few of the additions to our knowledge which have

been made since I last addressed you, especially considering that not a few of the discoveries to which I shall allude were either first announced, or have been made the subjects of discussion, at our several meetings.

Beginning then with Chemistry, as the subject with which I am most familiar, let me remind you, that at a period not much more remote than the one alluded to, all of it that could be quoted as really worthy the name of a Science was comprehended within the limits of the mineral kingdom. Here at least the outline had been traced out with sufficient precision—the general laws established on a firm basis—the nomenclature framed with logical exactness—the facts consistent with each other, and presented in a scientific and luminous form. Thus a philosopher, like Sir Humphry Davy, who had contributed in so eminent a degree to bring the science into this satisfactory condition, might, at the close of his career, have despaired of adding anything worthy of his name to the domain of chemistry, and have sighed for other worlds to subdue. But there was a world almost as little known to the chemists of that period as was the Western Hemisphere to the Macedonian conqueror,—a world comprising an infinite variety of important products, called into existence by the mysterious operation of the vital principle, and therefore placed, as was imagined, almost beyond the reach of experimental research. This is the new world of Chemistry, which the continental philosophers in the first instance, and subsequently those of our own country, have during the last twenty years been busy in exploring, and by so doing have not only bridged over the gulf which had before separated by an impassable barrier the kingdoms of inorganic and of organic nature, but also have added provinces as extensive and as fertile as those we were in possession of before, to the patrimony of science. It is indeed singular, that whilst the supposed elements of mineral bodies are very numerous, the combinations between them should be comparatively few; whereas amongst those of vegetable and animal origin, where the ultimate elements are so limited in point of number, the combinations which they form appear almost infinite. Carbon and hydrogen, for instance, constitute, as it were, the keystone of every organic fabric; whilst oxygen, nitrogen, and less frequently sulphur and phosphorus, serve almost alone to build up their superstructure. And yet what an infinity of products is brought about by ringing the changes upon this scanty alphabet! Even one series of bodies alone, that known by the name of the Fatty Acids, comprises several hundred well-ascertained combinations, founded however upon a single class of hydro-carbons or compound radicals, in which the carbon and hydrogen stand to each other in equal atomic proportions, and are in each case acidified by the same number of equivalents of oxygen. These acids are all monobasic, or combine with only one proportion of base; but add to any one of them two equivalents of carbonic acid, and you obtain a member of a second series, which is bibasic, or is capable of forming two classes of salts. The above therefore constitute a double series, as it were, of organic acids, the members of which are mutually related in the manner pointed out, and differ from each other in their mode of combining according to the relation between their respective elements. But already, by the labours of Hofmann, and of other chemists, two other double series of acids, the one monobasic the other bibasic, mutually related exactly in the same manner as those above, have been brought to light: each series no doubt characterized by an equally numerous appendage of alcohols, of ethers, and of aldehydes, to say nothing of the secondary compounds resulting from the union of each of them with other bodies. Hence the more insight we obtain into the chemistry of organic bodies, the more we become bewildered with their complexity, and in investigating these phenomena, find ourselves in the condition of the explorer of a new continent, who, although he might see the same sun over his head, the same ocean rolling at his feet, the same geological structure in the rocks that were piled around him, and

was thus assured that he still continued a denizen of his own planet, and subject to those physical laws to which he had been before amenable, yet at every step he took was met by some novel object, and startled with some strange and portentous production of nature's fecundity. Even so the chemist of the present day, whilst he recognises in the world of organic life the same general laws which prevail throughout the mineral kingdom, is nevertheless astonished and perplexed by the multiplicity of new bodies that present themselves, the wondrous changes in them resulting from slight differences in molecular arrangement, and the simple nature of the machinery by which such complicated effects are brought about. And as the New World might never have been discovered, or, at all events, would not have been brought under our subjection, without those improvements in naval architecture which had taken place prior to the age of Columbus, so the secrets of organic chemistry would have long remained unelicited, but for the facilities in the methods of analysis which were introduced by Liebig. Before his time the determination of the component elements of an organic substance was a task of so much skill as well as labour, that only the most accomplished analysts—such men, for instance, as my lamented friend Dr. Prout in this country, or as the great Berzelius in Sweden—could be depended upon for such a work; and hence the data upon which we could rely for deducing any general conclusions went on accumulating with extreme slowness. But the new methods of analysis invented by Liebig have so simplified and so facilitated the processes, that a student, after a few months' practical instruction in a laboratory, can, in many instances, arrive at results sufficiently precise to be made the basis of calculation, and thus to enable the master mind, which is capable of availing itself of the facts before it, to breathe life into these dry numerical details—just as the sculptor, by a few finishing strokes, brings out the expression of the statue, which has been prepared for him by the laborious chiseling of a number of subordinate workmen. And as the established laws and institutions of the Old World have been modified—may I not say in some instances rectified!—by the insensible influence of those of the New, so have the principles that had been deduced from the phenomena of the mineral kingdom undergone in many instances a correction from the new discoveries made in the chemistry of the animal and vegetable creation. It was a great step, indeed, in the progress of the science, when Lavoisier set the example of an appeal to the balance in all our experimental researches, and the Atomic Theory of Dalton may be regarded as the necessary, although somewhat tardy, result of the greater numerical precision thus introduced. But no less important was the advance achieved, when structure and polarity were recognised as influencing the condition of matter, and when the nature of a body was felt to be determined, not only by the properties of its component elements, but also by their mutual arrangement and collocation—a principle which, first illustrated amongst the products of organic life, has since been found to extend alike to all descriptions of matter. Formerly it had been the rule to set down the bodies which form the constituents of the substances we analysed, and which had never yet under our hands undergone decomposition, as elementary; but the discovery of cyanogen in the first instance, and the recognition of several other compound radicals in organic chemistry more lately, naturally suggest the idea, that many of the so-called elements of inorganic matter may likewise be compounds, differing from the organic radicals above-mentioned merely in their constituents being bound together by a closer affinity. And this conjecture is confirmed by the curious numerical relations subsisting between the atomic weights of several of these supposed elements—as, for example, between chlorine, bromine, and iodine; an extension of the grand generalization of Dalton, which, although it was unforeseen by the founder of the system, and, therefore, like Gay-Lussac's theory of volumes,

might very possibly have been repudiated by him, had it been proposed for his acceptance, will be regarded by others as establishing, in a manner more conclusive than before, the soundness of his antecedent deductions.

What, indeed, can be a greater triumph for the theorist, than to find that a law of nature which he has had the glory of establishing by a long process of induction, not only accommodates itself to all the new facts which the progress of discovery has since brought to light, but is itself the consequence of a still more general and comprehensive principle, which philosophers, even at this distance of time, are still engaged in unfolding? It is also curious to reflect, that whilst the bold speculations of Democritus have been realized by the Manchester philosopher, the reveries of the alchemists derive something like solid support from the minute investigations of his successors. We may remark, indeed, as not a little remarkable, how frequently the discoveries of modern days have served to redeem the fancies of mediæval times from the charge of absurdity. If the direction of a bit of steel suspended near the earth can, as Colonel Sabine has proved, be influenced by the position of a body like the moon, situated at a distance from it of more than 200,000 miles, who shall say that there was anything preposterously extravagant in the conception, however little support it may derive from experience, in the influence ascribed to the stars over the destinies of man by the astrologers of olden time? and when we observe a series of bodies, exhibiting, as it would seem, a gradation of properties, and, although as yet undeveloped, possessing a common numerical relation one to the other, who will deny the probability that they are composed of the same constituents, however little approach we may have as yet made towards the art of resolving them into their elements, or of forming them anew? Organic chemistry has also considerably modified our views with respect to chemical affinity. According to one view, indeed, which has been supported of late with considerable talent and ingenuity, the law of elective attraction, to which we have been in the habit of referring all the changes that are brought about by chemical means, is a mere figment of the imagination; and decomposition may be accounted for, without the interference of any such force, by regarding it simply as the result of that constant interchange which is supposed to be going on between the particles of matter—the atoms even of a solid body being, according to this hypothesis, in a state of incessant motion. But passing over these and other speculations which have not as yet received the general assent of chemists, let me advert to others of an older date, possessing, as I conceive, the strongest internal evidence in their favour which the case admits, from the harmony they tend to introduce into the chaos of facts which the late discoveries in organic chemistry have brought to light. Amongst these, one of the most generally received, and at the same time one of the most universal application, is that which represents the several combinations resulting from organic forces, as being put together according to a particular model or type, which impresses upon the aggregate formed certain common properties, and also causes it to undergo change most readily through the substitution of some other element in the place of one of those which already enters into its constitution. And this principle, having been established with regard to one class of bodies, has since been extended to the rest; for it now begins to be maintained, that in every case of chemical decomposition a new element is introduced in the place of one of those which constituted a part of the original compound, so that the addition of a fresh ingredient is necessarily accompanied by the elimination of an old one. The same doctrine, too, has even been extended to the case of combination with a body regarded as elementary, for here also the particles are considered as being in a state of binary combination one with the other, owing perhaps to their existing in opposite electrical conditions, and therefore possessing for each other a certain degree

of chemical affinity. Thus, when we unite hydrogen with oxygen, we substitute an atom of the latter for one of the former, previously combined with the same element. The type therefore remains, although the constituents are different. When, in the formation of alcohol, we combine the oxide of the compound radical æthyle with water, there is still only a substitution of the former for one of the atoms of water previously united together, two and two; and when we form æther, we eliminate the second atom of water, and replace it by another atom of the same compound radical. Thus the type of water still remains, although none of the materials of the original fabric continue; or, if I may adopt the metaphor of a building, although the original bricks which composed the structure may have been all replaced by other materials, the latter, however differing in their nature, always correspond, in point of shape, dimensions, and number, with the parts of the edifice which have been removed to make way for them. It is on this principle that Professor Williamson has propounded a new theory of ætherification, regarding the process as resulting from the alternate replacement of hydrogen by æthyle, and of æthyle by hydrogen, in the sulphuric acid concerned,—a view which best harmonises with the composition of the new æther he hit upon in the course of his investigations. The same principle may even be extended to bodies of the same type as ammonia; for inasmuch as this body is made up of a union of an atom of nitrogen with three of hydrogen, it is easy to conceive that a variety of different compounds might be formed by the substitution of one, two, or three atoms of other radicals for the same number of atoms of the original hydrogen. How beautifully this idea has been carried out in the recent researches of Hofmann, and how happily it serves to elucidate the formation of the various vegetable alkaloids, which, from their energetic action upon the animal economy, have of late excited so much interest in the public mind, is sufficiently known to those who are chemists, and could not be rendered intelligible to those who are not, without entering into details which would be out of place on the present occasion. I must not, however, pass over this part of the subject without remarking, that the adoption of Professor Williamson's ethyle theory would establish a still nearer analogy between the constitution of organic and of mineral compounds than is at present recognised, since in that case alcohol and æther would stand in the same relation one to the other, and belong to the same class or series, as the acids and their salts. These views, however, and others having reference to the same subject, are now under discussion, and I hope in progress of being worked out by the able chemist above alluded to, whose promised report on this subject, had it been ready for this meeting, would have superseded the necessity of the above remarks. They have also engaged the attention of my distinguished successor in the chair of Chemistry at Oxford, who has published some elaborate researches bearing upon the questions here mooted, whilst on the Continent they have been taken up by several of the most eminent chemists of the day, such as Gerhardt, Wurtz, and Cahours. Should they ultimately win their way to general reception, they must tend to bring about an entire remodelling of our views, both with respect to organic and inorganic compounds, and render that reform in our nomenclature which I pressed upon the attention of the Chemical Section at our meeting in Ipswich, more than ever a matter of urgent necessity.

Many, however, perhaps of my present audience may not have advanced beyond that initial stage of all speculation, which contemplates external objects solely as they affect themselves, and not abstractedly in their relations to each other; and to such it may be more interesting to consider those practical results bearing upon the arts of life, which have either been actually deduced, or may be anticipated as likely to accrue, from the discoveries in question. Of these perhaps the most important is the possibility of forming by art those compounds, which had been formerly supposed to be only producible by natural processes, under the influence of

the vital principle. The last two years have added materially to the catalogue of such bodies artificially produced, as in the formation of several species of alcohol from coal gas by Berthelot, that of oil of mustard by the same chemist, and the generation of taurine, a principle elaborated in the liver, by Strecker. And if the above discoveries should strike you at first sight rather as curious than practically useful, I would remark, that they afford reasonable ground for hope, that the production of some of those principles of high medicinal or economical value, which Nature has sparingly provided, or at least limited to certain districts or climates, may lie within the compass of the chemist's skill. If quinine, for instance, to which the Peruvian bark owes its efficacy, be, as would appear from recent researches, a modified condition of ammonia, why may not a Hofmann be able to produce it for us from its elements, as he has already done so many other alkaloids of similar constitution? And thus, whilst the progress of civilization, and the development of the chemical arts, are accelerating the consumption of those articles, which kind Nature has either been storing up for the uses of man during a vast succession of antecedent ages, or else is at present elaborating for us in that limited area, within which alone the conditions would seem to be such as to admit of their production, we are encouraged to hope that Science may make good the loss she has contributed to create, by herself inventing artificial modes of obtaining these necessary materials. In this case we need not so much regard the exhaustion of our collieries, although Nature appears to have provided no means for replenishing them; nor even be concerned at the rapid destruction of the trees which yield the Peruvian bark, limited though they be to a very narrow zone, and to a certain definite elevation on either side of the equator. Already, indeed, chemistry has given token of her powers, by threatening to alter the course of commerce, and to reverse the tide of human industry. Thus she has discovered, it is said, a substitute for the cochineal insect, in a beautiful dye producible from guano. She has shown, that our supply of animal food might be obtained at a cheaper rate from the Antipodes, by simply boiling down the juices of the flesh of cattle now wasted and thrown aside in those countries, and importing the extract in a state of concentration. She has pointed out, that one of the earths which constitute the principal material of our globe contains a metal, as light as glass, as malleable and ductile as copper, and as little liable to rust as silver; thus possessing properties so valuable, that when means have been found of separating it economically from its ore, it will be capable of superseding the metals in common use, and thus of rendering metallurgy an employment, not of certain districts only, but of every part of the earth to which science and civilization have penetrated. And may I not also say, that she has contributed materially towards the advancement of those arts in which an agricultural county like this is especially interested? Who has not heard of the work of Baron Liebig, which, at the time of its first appearance, made such a sensation throughout the country; and stirred up the dormant energies of the agricultural public, not less thoroughly than the subsoil plough, of which he explained the advantages, elicited the latent treasures of the land? It is not often that the same individual has reaped a high reputation, at once by establishing general principles in science, and by rendering popular their application to practice. Oersted, the father of the science of Electro-chemistry, and our own Faraday, who has done so much to develop its principles, left to Wheatstone the invention of the telegraph; Dalton, the propounder of the Atomic Theory, did nothing to improve the manufactures of the city in which he resided; and the contrivances which have rendered the steam-engine generally applicable to practice required a combination of the distinct talents of a Black and a Watt—the one to explain the theory of latent heat, the other to apply it to the economical generation of steam. But Baron Liebig

stands equally distinguished for his ingenuity in devising new methods of analysis, for his originality in propounding great theoretical principles in science, and for his happy talent in applying these principles to purposes of practical utility. Like his countryman Goethe, his mind seems to have passed through three phases; for his ingenious methods of analysis were appreciated, before his views on the relation between organic substances, his doctrine of compound radicals, and the consequences flowing from his researches in vegetable chemistry, came to be generally admitted; and the latter had already taken root in the minds of chemists, and had established for him a very high reputation among his fellow-labourers in science, before his attempts to apply his principles to agriculture and to physiology made his name so celebrated, as it has since been, amongst the public in general. It is well known that a controversy has been going on for some time past, between this distinguished foreigner and certain experimental agriculturists of our own country, with regard to the principles upon which the manuring of our land ought to be regulated. In this dispute, however, you will not expect me to take part, for it would be obviously improper, on the present occasion, that I should avail myself of a little brief authority to influence the public on either side of a much-debated question; and, indeed, on any other, it might be deemed an act of presumption in an individual, who can prefer no claim either to the extensive practical experience of the one, or to the high scientific eminence of the other, to take upon himself to adjudicate between two such conflicting parties. But I may be permitted to remark, that whilst some points of difference between them still remain open for further investigation, a much nearer correspondence of opinion exists with respect to others, than the public in general, or even perhaps the disputants themselves, are inclined to allow. In so far, indeed, as relates to the relative advantages of mineral and ammoniacal manures, I presume there is little room for controversy; for although most soils may contain a sufficiency of the inorganic constituents required by the crop, it by no means follows that the latter are always in an available condition; and hence it may well happen that in most cases in which land has been long under cultivation, the former class of manures becomes, as Baron Liebig asserts, a matter of paramount necessity. Now that the same necessity exists for the addition of ammoniacal manures can hardly be contended, when we reflect, that at the first commencement of vegetable life, every existing species of plant must have obtained its nourishment solely from the gaseous constituents of the atmosphere, and from the mineral contents of the rock in which it vegetated. The only divergence of opinion, therefore, that can arise, relates to the degree of their respective utility in the existing state of our agriculture, and to the soundness of Baron Liebig's position, that a plant rooted in a soil well-charged with all the requisite mineral ingredients, and in all other respects in a condition calculated to allow of healthy vegetation, may sooner or later be able to draw from the atmosphere whatever else is required for its full development. And does not, I would ask, this latter position derive some support from the luxuriant vegetation of the tropics, where art certainly contributes nothing towards the result? and is it not also favoured by such experiments as those carried on at Lois Weedon in Northamptonshire, where the most luxuriant wheat crops have been obtained for a number of consecutive years without manure of any kind, simply by following out the Tullian system of stirring up and pulverizing the soil? How, too, are we to explain that capacity of subsisting without any artificial supply of ammonia, which Mr. Lawes is led by his experiments to attribute to turnips, and other plants of similar organization, unless we assume that the power residing in the leaves of absorbing ammonia from the air may render plants, in some cases at least, independent of any extraneous aid? Be this, however, as it may, there is at least a wide distinction between this opinion, and the one

attributed to Baron Liebig by many, who would seem to imagine, that according to his views, ammonia, if derived from artificial sources, was in a manner useless to vegetation. As if it could be a matter of any moment, whether the substance which in both cases afforded the supply of nitrogen, and which in both cases also was primarily derived from the decomposition of organic substances, had been assimilated by plants directly upon its being thus generated, or had been received into their system at a later period, after having been diffused through the atmosphere! To suppose that Baron Liebig should have attached any moment to this distinction seems inconsistent with many passages in his work, in which, although the paramount importance of mineral manures may be insisted upon, and the success which had in certain cases attended the use of one compounded only of mineral ingredients may be put forward as a motive for further trials, the utility of ammoniacal substances in all their several forms is at the same time distinctly admitted. Still the practical question remains, whether, admitting the theoretical truth of Baron Liebig's position, a larger expenditure of capital will not be required for bringing a given farm into a condition to dispense with ammoniacal manures, than for procuring those materials which contain that ingredient ready for use. And here experimental researches, such as those conducted on so extended and liberal a scale by Mr. Lawes and Dr. Gilbert, come in aid of theory. They stand, as it were, midway between the abstract principles which science points out to the farmer, and the traditional usages with respect to his art which have been handed down to him from one generation to another. They bear the same relation to the farmer, which the records of the clinical practice in a large infirmary do to the general principles of medicine expounded by the modern physiologist. It is true, that the experience of a particular hospital may not at all times coincide with the anticipations which science holds out; but this discrepancy only suggests to us the imperfection of our present knowledge, and is not allowed to disturb the confidence of the physician in principles already established on incontrovertible evidence. On the contrary, whilst he modifies his practice from time to time by the experience he has gained by actual observation, he feels at the same time the fullest conviction, that these results will be found eventually reconcilable with the general principles which a still more extended series of induction may have established. I need not occupy your time by applying the same method of proceeding to the recent researches alluded to, but I will carry the analogy between the science of Agriculture and Therapeutics one step further. You may recollect, that in a report on the progress of husbandry, drawn up some years ago by one of the most enlightened and zealous promoters of the agricultural interest in Great Britain, now, alas! deceased, it was asserted, that chemistry had done nothing for the farmer, except in teaching him to use sulphuric acid with his bones, and to take advantage of the refuse flux liquor, formerly thrown away and wasted. Now a statement of this kind, although it might be literally true in the narrow sense in which the author doubtless intended it,—namely, as referring merely to the introduction of new specifics or recipes into farming, was calculated, when put forth on such high authority, to foster that tendency in the human mind to which we are all more or less prone, that of sparing ourselves the trouble of thought and reflection in shaping the course of our conduct, by leaning blindly upon certain rigid and unvarying rules already chalked out to us by others. It was this propensity exercised upon moral subjects which has encumbered our libraries with those vast tomes on casuistry, in which the conduct to be pursued in each imaginable case of conscience was attempted to be prescribed; it was this which has driven many a patient to fly from the regular practitioner into the arms of the homoeopathist, who professes to have a *globule* ready to meet every imaginable symptom. Grant that science has as yet supplied us with only two infallible receipts for the improve-

ment of our land, the agricultural chemist may derive credit from the reflection, that medicine too, since the days of Hippocrates, has lighted only upon two or three specifics for the cure of disease; and that the most enlightened physicians of the present day, in the spirit which we would fain see actuating the leaders of the agricultural body, depend not upon the efficacy of *nostrums*, but upon their sagacity in referring the varying conditions of each case which comes before them to those principles of physiology which modern science has established. And has not science also unfolded principles which may be called in to aid and direct the practical labours of the agriculturist? I need not go further than the works of Baron Liebig for an answer to this question. I may appeal, for instance, to the extensive employment of guano at the present time, first introduced in England in consequence of his suggestions: I may refer to the substitution of mineral phosphates for bones, founded upon his explanation of the sources from which the latter substance derives its efficacy as a manure: and I may allude more especially to his refutation of the humus theory, to which even the great Saussure gave his adhesion, and the reception of which was calculated to vitiate, not a few processes only, but the entire system of our husbandry. But whilst we do justice to those comprehensive views on agricultural science which have shed a new lustre upon the name of Liebig, let us not forget the practical researches which have been carried on in our own country; and especially those conducted under the auspices of the Highland Society by Dr. Anderson; at our own Agricultural College by Prof. Voelcker; and, through the aid of the Royal Agricultural Society, by their consulting chemist, Mr. Way. And, although in alluding to the labours of the latter, we may be bound to confess, that in one of the latest and probably the most important investigations undertaken by him, that, namely, on the absorptive qualities of clay with reference to ammoniacal salts, he had been anticipated, so far as the principle goes, by the German Professor, who announced the fact many years before in his work 'On Chemistry applied to Agriculture,' yet experience has often shown that a principle may lie dormant long after it was enunciated, until its truth is rendered palpable to the senses by a series of practical researches expressly directed with a view to demonstrate its general applicability. Baron Liebig has himself remarked, that as a plant, in order to thrive, must receive its food, not in a concentrated form, but reduced to a certain state of tenuity by being diffused through water; so an abstract truth only makes an impression upon the mind and feelings, when presented to it properly diluted, turned, as it were, inside out, examined under every aspect, and decked out with all the accompaniments of dress, ornament, and colour. Then, indeed, as the seed, when implanted in the ground and taken root, is able to cleave asunder the hardest rocks, and that, as the old proverb says, all without noise; so likewise the truth will at length in its own good time begin to germinate, and gradually conquering all obstacles, establish for itself a footing in the mind of the public. Let us not therefore withhold our meed of approbation from those who have worked out for us any useful scientific principle, even though the germ may be traceable to some other quarter; conscious that it is to its being brought thus prominently forward, and, as it were, forced upon the attention of the public, that we owe its general reception and its reduction to practice.

But it is time to hasten on to certain other departments of Natural Science. In Botany and Vegetable Physiology it cannot perhaps be said, that whole provinces have been added to the domain of the science since the period alluded to, as we have seen to be the case in our review of the progress of chemistry. Even so long ago as the year 1832, the elder De Candolle, who, if not the most original or the most profound of the botanists of his day, was at least the most conspicuous for the wide range of his information, and for his happy talent of imparting it to others, published that admirable work on Vegetable Physiology, which even

at the present time is capable of serving as a most useful guide in many branches of the subject. And yet what a mass of important information has been brought together since that period! The improvements in the microscope which have since taken place, render us familiar with particulars relating to the structure and functions of the vegetable creation, which the ruder methods of investigation before resorted to would never have revealed to us. We owe to them the interesting discoveries of Brown and Adolphe Brongniart, as to the mode in which the pollen is brought into immediate contact with the ovules, by means of the tubes which it protrudes by a prolongation of the innermost of its two investing membranes. Thus much at least appears to be fully ascertained; but in alluding to the observations of others who have endeavoured to push their scrutiny still further, it becomes me to speak with more diffidence, inasmuch as the office which the pollen discharges in the act of fecundation is still a matter of dispute, between such men as Schleiden and Schacht, on the one side, and Hofmeister, Moll, &c., on the other. Whilst, however, this controversy continues, it is something at least to know, that the vivifying principle, whatever it may be, is actually transmitted to the part where its influence is to be exerted, and not kept apart from it, as we were formerly compelled to assume, by that long intervening plexus of fibres or tubes which constitutes the style. To the microscope also we owe all that is as yet known with respect to the reproductive process in cryptogamous plants, which are now shown to possess a structure analogous to that of flowering ones in respect to their organs of reproduction; not, indeed, as Hedwig supposed, that parts corresponding to stamens and pistils in appearance and structure can be discovered in them, but as the primary distinction of sexes seems to run throughout the vegetable kingdom, new parts are superadded to a structure common to all as we ascend in the scale of creation, until from the simple cell, which, in consequence of some differences of structure to our eyes appreciable, appears to exercise in one case the function of the male, in another of the female, as is found the case in certain of the Convolvaceæ, we arrive at length at the complicated machinery exhibited in flowering plants, in which the cell containing the fecundating principle is first matured in the stamen, and afterwards transmitted through an elaborate apparatus to the cells of the ovule, which is in like manner enveloped in its matrix, and protected by the series of investing membranes which constitutes the seed-vessel. Thus, as Goethe long ago observed, and as modern physiologists have since shown to be the case, the more imperfect a being is, the more its individual parts resemble each other—the progress of development, both in the animal and vegetable kingdom, always proceeding from the like to the unlike, from the general to the particular. But whilst the researches of Brown and others have shown, that there is no abrupt line of division in the vegetable kingdom, and that one common structure pervades the whole; the later inquiries of Suminski, Hofmeister, Unger, Griffith, and Henfrey have pointed out several curious and unlooked-for analogies between plants and animals. I may mention, in the first place, as an instance of this analogy between plants and animals, the existence of moving molecules or phytosperms in the antheridia of ferns and other cryptogams, borne out, as it has been in so remarkable a manner, by the almost simultaneous observations of Bischoff and Meissner on the egg, confirmatory of those formerly announced by Barry and Newport, and by the researches of Suminski, Thuret, and Pringsheim, with respect to the ovule of plants. I may refer you also to a paper read at the last Meeting of the Association, by Dr. Cohn of Breslau, who, in bringing this subject before the Natural History Section, adduced instances of a distinction of sexes which had come under his observation in the lower algae. In like manner a curious correspondence has been traced between the lower tribes of animals and plants, in the circumstance of both being subject to the law of what is called alternate generation. This consists in a sort of cycle of

changes from one kind of being to another, which was first detected in some of the lower tribes of animals, a pair of insects, for example, producing a progeny differing from themselves in outward appearance and internal structure, and these reproducing their kind without any renewed sexual union, the progeny in these cases consisting of females only. At length, after a succession of such generations, the offspring reverts to its primeval type, and pairs of male and female insects of the original form are reproduced, which complete the cycle, by giving rise in their turn to a breed presenting the same characters as those which belong to their own progenitors. An ingenious comparison had been instituted by Owen and others between this alternation of generations in the animal, and the alternate production of leaves and blossoms in the plant; but the researches to which I especially allude have rendered this no longer a matter of mere speculation or inference, inasmuch as they have shown the same thing to occur in ferns, in lycopodia, in mosses, nay, even in the Convolvaceæ. We are indebted to Professor Henfrey for a valuable contribution to our Transactions in 1851 on these subjects, given in the form of a Report on the Higher Cryptogamous Plants; from which it at least appears, that the proofs of sexuality in the cryptogamia rank in the same scale as to completeness, as those regarding flowering plants did before the access of the pollen tubes to the ovule had been demonstrated. Indeed, if the observations of Pringsheim with respect to certain of the algae are to be relied upon, the analogy between the reproductive process in plants and animals is even more clearly made out in these lower tribes than it is in those of higher organization. —It also appears, that the production in ferns and other acrogens of what has been called a *pro-embryo*; the evolution of antheridia and archegonia, or of male and female organs, from the former; and the generation from the archegonia of a frond bearing spores upon its under surface, is analogous to what takes place in flowering plants in general; where the seed, when it germinates, produces stem, roots, and leaves; the stem for many generations gives rise to nothing but shoots like itself; until at length a flower springs from it, which contains within itself for the most part the organs of both sexes united, and therefore occasions the reproduction of the same seed with which the chain of phenomena commenced. This is the principle which a learned Professor at Berlin has rather obscurely shadowed out in his 'Treatise on the Rejuvenescence of Plants,' and which may perhaps be regarded as one at least of the means by which Nature provides for the stability of the forms of organic life: she has created, by imparting to each plant a tendency to revert to the primeval type.

To the elder De Candolle we are also indebted for some of our most philosophical views with respect to the laws which regulate the distribution of plants over the globe—views which have been developed and extended, but by no means subverted, by the investigations of subsequent writers; amongst whom Sir Charles Lyell, in his 'Principles of Geology,' and the younger De Candolle, a worthy inheritor of his father's reputation, in his recently published work on Botanical Geography, have especially signalized themselves. But it is to the late Professor Edward Forbes, and to Dr. Joseph Hooper, that we have principally to attribute the removal of those anomalies, which threw a certain degree of doubt upon the principles laid down by De Candolle in 1820, in his celebrated article on the Geography of Plants, contained in the 'Dictionnaire des Sciences Naturelles,' where the derivation of each species from an individual, or a pair of individuals, created in one particular locality, was made the starting-point of all our inquiries. These anomalies were of two different kinds, and pointed in two opposite directions: for we had in some cases to explain the occurrence of a peculiar flora in islands cut off from the rest of the world, except through the medium of a wide intervening ocean; and in other cases to reconcile the fact of the same or of allied species being diffused over vast areas, the several portions of which are at the

present time separated from each other in such a manner as to prevent the possibility of the migration of plants from one to the other. Indeed, after making due allowances for those curious contrivances by which Nature has in many instances provided for the transmission of species over different parts of the same continent, and even across the ocean, and which are so well pointed out in De Candolle's original essay, we are compelled to admit the apparent inefficiency of existing causes to account for the distribution of the larger number of species; and must confess that the explanation fails us often where it is most needed, for the composite, in spite of those feathery appendages they possess, which are so favourable to the wide dissemination of their seeds, might be inferred, by their general absence from the fossil flora, to have diffused themselves in a less degree than many other families have done. And, on the other hand, it is found, that under existing circumstances, those composite, which are disseminated throughout the area of the Great Pacific, belong in many cases to species destitute of these auxiliaries to transmission.

But here geology comes to our aid; for by pointing out the probability of the submergence of continents on the one hand, and the elevation of tracts of land on the other, it enables us to explain the occurrence of the same plants in some islands or continents now wholly unconnected, and the existence of a distinct flora in others too isolated to obtain it under present circumstances from without. In the one case, we may suppose the plants to have been distributed over the whole area before its several parts became disunited by the catastrophes which supervened; in the other, we may regard the peculiar flora now existing as merely the wreck, as it were, of one which once overspread a large tract of land, of which all but the little patch upon which it is now found had since been submerged. However, upon this subject our opinions may in some measure be swayed by the nature of the conclusions we arrive at with respect to the length of time during which seeds are capable of maintaining their vitality; for if after remaining for an indefinite period in the earth they were capable of germinating, it would doubtless be easier to understand the revival, under favourable circumstances, of plants which had existed before the severance of a tract of land from the continent in which they are indigenous. An inquiry has accordingly been carried on for the last fifteen years under the auspices of, and with the aid of funds supplied by, this Association, the results of which, it is but fair to say, by no means corroborate the reports that had been from time to time given us with respect to the extreme longevity of certain seeds, exemplified, as it was said, in the case of the mummy-wheat and other somewhat dubious instances; inasmuch as they tend to show, that none of the seeds which were tested, although they had been placed under the most favourable artificial conditions that could be devised, vegetated after a period of forty-nine years; that only twenty out of 288 species did so after twenty years; whilst by far the larger number had lost their germinating power in the course of ten. These results, indeed, being merely negative, ought not to outweigh such positive statements on the contrary side as come before us recommended by respectable authority, such, for instance, as that respecting a *Nelumbium* seed, which germinated after having been preserved in Sir Hans Sloane's Herbarium for 150 years; still, however, they throw suspicion as to the existence in seeds of that capacity of preserving their vitality almost indefinitely, which alone would warrant us in calling to our aid this principle in explaining the wide geographical range which certain species of plants affect. Let us then be content to appeal to those ingenious views which were first put forth at one of our meetings by the late Professor Forbes, and which have since been promulgated in a more detailed and systematic form by the same distinguished naturalist. By the aid of the principles therein laid down, he was enabled to trace the flora of Great Britain principally to four distinct sources, owing to the geological connexion

of these islands at one period or other with Scandinavia, with Germany, with France, and with Spain! And it was by a similar assumption that Dr. Joseph Hooker explained the distribution of the same species throughout the islands of the Great Pacific, and the contiguous continents, tracts which, as Darwin had shown, were formerly united. Nor is this mode of explanation limited to the case of the above regions; for in the 'Flora Indica,' which important work I regret to find has been suspended after the appearance of the first volume, Dr. Hooper, in conjunction with his fellow-traveller, Dr. Thomson, has discussed the same problem with regard to the whole of India, extending from Afghanistan to the Malayan peninsula. And amongst the many services rendered to the natural sciences by these indefatigable botanists, one of the greatest I conceive to be, that they have not only protested against that undue multiplication of species, which had taken place by exalting minute points of difference into grounds of radical and primary distinction, but that they have also practically illustrated their views with respect to the natural families which have been described by them in the volume alluded to. They have thus contributed materially to remove another difficulty which stood in the way of the adoption of the theory of specific centres—I mean the replacement of forms of vegetation in adjoining countries by others, not identical, but only as it should seem allied; for it follows from the principles laid down by these authors, that such apparently distinct species may after all have been only varieties, produced by the operation of external causes acting upon the same species during long periods of time.

But if this be allowed, what limits, it may be asked, are we to assign to the changes which a plant is capable of undergoing, and in what way can we oppose the principle of the transmutation of species, which has of late excited so much attention, and the admission of which is considered to involve such startling consequences? I must refer you to the writings of modern physiologists for a full discussion of this question, and may appeal in particular to the lecture delivered before this Association by Dr. Carpenter at our last meeting. All that I shall venture to remark on the subject is, that had not Nature herself assigned certain boundaries to the changes which plants are capable of undergoing, there would seem no reason why any species at all should be restricted within a definite area, since the unlimited adaptation to external conditions which it would then possess might enable it to diffuse itself throughout the world, as easily as it has done over that portion of space within which it is actually circumscribed. Dr. Hooker instances certain species of *Coprosma*, of *Celmisia*, and a kind of Australian Fern, the *Lo-maria procera*, which have undergone such striking changes in their passage from one portion of the Great Pacific to another, that they are scarcely recognisable as the same, and have actually been regarded by preceding botanists as distinct species. But he does not state that any of these plants have ever been seen beyond the above-mentioned precincts; and yet if nature had not imposed some limits to their susceptibility of change, one does not see, why they might not have spread over a much larger portion of the earth, in a form more or less modified by external circumstances. The younger De Candolle, in his late admirable treatise already referred to, has enumerated about 117 species of plants which have been thus diffused over at least a third of the surface of the globe, but these apparently owed their power of transmigration to their insusceptibility of change, for it does not appear that they have been much modified by the effect of climate or locality, notwithstanding the extreme difference in the external conditions to which they were subjected. On the other hand, it seems to be a general law, that plants, whose organization is more easily affected by external agencies, become, from that very cause, more circumscribed in their range of distribution; simply because a greater difference in the circumstances under which they would be placed brought with it an amount of change in their structure, which ex-

ceeded the limits prescribed to it by Nature. In short, without pretending to do more than to divine the character of those impediments, which appear ever to prevent the changes of which a plant is susceptible from proceeding beyond a certain limit, we seem to catch a glimpse of a general law of Nature, not limited to one of her kingdoms, but extending everywhere throughout her jurisdiction,—a law, the aim of which may be inferred to be, that of maintaining the existing order of the universe, without any material or permanent alteration, throughout all time, until the fiat of Omnipotence has gone forth for its destruction. The will, which confines the variations in the vegetable structure within a certain range, lest the order of creation should be disturbed by the introduction of an indefinite number of intermediate forms, is apparently the same in its motive as that which brings back the celestial Luminaries to their original orbits, after the completion of a cycle of changes induced by their mutual perturbations; it is the same which says to the Ocean, Thus far shalt thou go, and no further; and to the Winds, Your violence, however apparently capricious and abnormal, shall nevertheless be constrained within certain prescribed limits—

"Ni faciat, maria et terras cœlumque profundum,
Quippe ferant rapidi secum, verrantque per auras."

The whole indeed resolves itself into, or at least is intimately connected with, that law of symmetry to which Nature seems ever striving to confirm, and which possesses the same significance in the organic world, which the law of definite proportions does in the inorganic. It is the principle which the prophetic genius of Goethe had divined, long before it had been proved by the labours of physiologists to be a reality, and to which the poet attached such importance, that the celebrated discussion as to its merits, which took place in 1830 between Cuvier and Geoffroy St. Hilaire, so engrossed his mind, as to deprive him, as his biographer informs us, of all interest in one of the most portentous political events of modern days which was enacting at the very same epoch,—I mean the subversion of the Bourbon dynasty. It is indeed not less calculated to subserve to the gratification of our sense of the beautiful, than to provide against too wide a departure from that order of creation which its great Author has from the beginning instituted; and, as two learned Professors of a sister kingdom have pointed out in memoirs laid before this Association, and have since embodied in a distinct treatise, manifests itself not less in the geometrical adjustment of the branches of a plant, and of the scales of a fir-needle—nay even, as they have wished to prove, in the correspondence between the form of the fruit and that of the tree on which it grows—than in the frequent juxtaposition of the complementary rays of the spectrum, by which that harmony of colour is produced in Nature, which we are always striving, however unsuccessfully, to imitate in Art. The law, indeed, seems to be nothing else than a direct consequence of that unity of design pervading the universe, which so bespeaks a common Creator—of the existence in the mind of the Deity of a sort of archetype, to which His various works have all to a certain extent been accommodated; so that the earlier forms of life may be regarded as types of those of later creation, and the more complex ones but as developments of rudimentary parts existing in the more simple. Here, too, we may perhaps trace an analogy with His dealings with mankind, as unfolded in His Revealed Word; from which we find, that the earlier events recorded are often typical of those more modern, and that Christianity itself is in some sense a development of the Jewish dispensation which preceded it.

I should apologize for dwelling so long upon the two departments of natural knowledge to which I have hitherto confined myself, were it not that other sciences of a still higher rank than those treated of had been discussed so fully in the Discourses of former Presidents. Whilst, indeed, this is the first occasion, save one, in which a Chemist has had the honour of occupying the Chair of the British Association, it has on no former

occasion fallen to the lot of a professed Botanist to be thus distinguished. I have therefore consulted alike my own ease, and what was due to the Sciences themselves, in making Chemistry and Botany the principal themes of my discourse. Leaving, then, to the gifted friend who will discourse before you next Monday evening 'On the Correlation of Physical Forces,' the task of connecting with those Powers of Nature that manifest themselves in the phenomena of chemical attraction or of cell-development, the imponderable agents which form the proper subjects of branches of Physics not here dwelt upon, and thus establishing the existence of that common brotherhood among the sciences which furnishes the best plea for such meetings as the present, I will only further detain you by noticing one other field of inquiry, in which I have ever felt a lively interest, although it has only been in my power to bestow on it a casual attention, or cultivate one limited portion of the wide range which it embraces. Indeed Geology, the science to which I now allude, has, during the last twenty years, made such rapid strides, that those who endeavoured from an early period of life to follow at a humble distance the footsteps of the great leaders in that science, obeying the impulse of such zealous and ardent spirits as the one—now, alas! by the inscrutable decrees of Providence, lost to his friends and to science—who constituted the head of what was once called, I hope not too grandiloquently, the Oxford School of Geology—have, if I may judge of others by myself, been often distanced in the race, and when they endeavoured to make good their lost ground, found themselves transported into a new, and to them an almost unknown region. Thus the thorough exploration which has taken place of the Silurian and Cambrian systems, through the exertions of two of our oldest and most valued Associates, has added a new province—ought I not rather to say a new kingdom!—to the domain of Geology, and has carried back the records of the creation to a period previously as much unknown to us as were the annals of the Assyrian dynasties before the discoveries of Sir Henry Rawlinson. I might also be disposed to claim for the recent investigations of botanists some share in fixing the relative antiquity of particular portions of the globe, for from the floras they have given us of different islands in the Great Pacific, it would appear that the families of plants which characterise some groups are of a more complicated organisation than those of another. Thus whilst Otaheite chiefly contains Orchids, Apocynæ, Asclepiadæ, and Urticæ, the Sandwich Islands possess Lobeliaceæ and Goodenoviæ, and the Galapagos Islands, New Zealand, and Juan Fernandez, Compositæ, the highest form perhaps of dicotyledonous plants. In deducing this consequence, however, I am proceeding upon a principle which has lately met with opposition, although it was formerly regarded as one of the axioms in geology. Amongst these, indeed, there was none which a few years ago seemed so little likely to be disputed as that the classes of animals and vegetables which possessed the most complicated structure were preceded by others of a more simple one; and that when we traced back the succession of beings to the lowest and the earliest of the sedimentary formations, we arrived at length at a class of rocks, the deposition of which must be inferred, from the almost entire absence of organic remains, to have followed very soon after the first dawn of creation. But the recognition of the footprints and remains of reptiles in beds of an earlier date than was before assigned to them, tended to corroborate the inferences which had been previously deduced from the discovery, in a few rare instances, in rocks of the secondary age, of mammalian remains; and thus has induced certain eminent geologists boldly to dispute whether from the earliest to the latest period of the earth's history any gradation of beings can in reality be detected. Into this controversy I shall only enter at present, so far as to point out an easy method of determining the fact, that organic remains never can have existed in a particular rock, even although it may have been subjected to such metamorphic action as would

have obliterated all traces of their presence. This is simply to ascertain that the material in question is utterly destitute of phosphoric acid; for inasmuch as every form of life appears to be essentially associated with this principle, and as no amount of heat would be sufficient to dissipate it when in a state of combination, whatever quantity of phosphoric acid had in this manner been introduced into the rock, must have continued there till the end of time, notwithstanding any igneous operations which the materials might have afterwards undergone. But as the discovery of very minute traces of phosphoric acid, when mixed with the other ingredients of a rock, is a problem of no small difficulty, an indirect method of ascertaining its presence suggested itself to me in some experiments of the kind which I have instituted, namely, that of sowing some kind of seed, such for instance as barley, in a sample of the pulverised rock, and determining whether the crop obtained yielded more phosphoric acid than was present in the grain, it being evident that any excess must have been derived from the rock from which it drew its nourishment. Should it appear by an extensive induction of particulars that none of the rocks lying at the base of the Silurian formation, which have come before us, contain more phosphoric acid than the minute quantity I detected in the slates of Bangor and Llanberris, which were tested in the above manner, it might perhaps be warrantable hereafter to infer that we had really touched upon those formations that had been deposited at a time when organic beings were only just beginning to start into existence, and to which, therefore, the term azoic, assigned to these rocks by some of the most eminent of our geologists, might not be inappropriate. The proofs of the former extension of glaciers in the northern hemisphere, far beyond their actual limits, tend also to complicate the question which has at all times so much engaged the attention of cosmogonists with respect to the ancient temperature of the earth's surface; compelling us to admit that at least during the later of its epochs, oscillations of heat and cold must have occurred to interfere with the progress of refrigeration which was taking place in the crust. On the other hand, facts of an opposite tendency, such as the discovery announced at our last meeting by Captain Belcher of the skeleton of an ichthyosaurus in lat. 77°, and of the trunk of a tree standing in an erect position in lat. 75°, have been multiplying upon us within the same period; inasmuch as they appear to imply that a much higher temperature in former times pervaded the Arctic regions than can be referred to local causes, and therefore force upon us the admission, that the internal heat of the nucleus of our globe must at one time have influenced in a more marked manner than at present the temperature of its crust. On the causes of this increased temperature, whether local or cosmical, much elaborate research has been brought to bear by Sir Charles Lyell, in his celebrated 'Principles of Geology,' and by Mr. Hopkins, in his Address to the Geological Society. The most extensive collection of facts, however, having reference to this subject, is contained in the Reports on Earthquake Phenomena, published by Mr. Mallet, in our Transactions, supplying, as they do, data of the highest importance to the full elucidation of the subject. For although the evidence I have myself brought together in my work on Volcanos might be sufficient to establish in a general way the connexion of earthquakes with that deep-seated cause which gives rise to the eruptions of a volcano, yet our interest is thereby only the more awakened in the phenomena they present,—just as Dr. Whewell's inquiries into the local variations of the Tides were valued all the more in consequence of the persuasion already felt, that lunar attraction was their principal cause. But if earthquakes bring under our notice chiefly the dynamical effects of this hidden cause of movement and of change, those of volcanos serve to reveal to us more especially their chemical ones; and it is only by combining the information obtained from these two sources, together with those from hot springs,

especially as regards the gaseous products of each, that we can ever hope to penetrate the veil which shrouds the operations of this mysterious agent; so as to pronounce, with any confidence, whether the effects we witness are due, simply to that incandescent state in which our planet was first launched into space, or to the exertion of those elective attractions which operate between its component elements,—attractions which might be supposed to have given rise, in the first instance, to a more energetic action, and consequently to a greater evolution of heat, than is taking place at present, when their mutual affinities are in a greater measure assuaged. Within the last twenty years much has been done towards the elucidation of this problem through the united investigations of Bouscington, of Deville, and above all of Bunsen, with respect to the gases and other bodies evolved from volcanos in their various phases of activity; the results of which, however, do not appear to me to present anything irreconcilable with that view of their causes which was put forth many years ago in the work I published. Whilst, however, the latter is offered as nothing more than as a conjectural explanation of the phenomena in question, I may remind those who prefer the contrary hypothesis, on the ground that the oblate figure of the earth is in itself a sufficient proof of its primeval fluidity, that this condition of things could only have been brought about in such materials by heat of an intensity sufficient, whilst it lasted, to annul all those combinations amongst the elements which chemical affinity would have a tendency to induce, and thus to render those actions to which I have ascribed the phenomena not only conceivable, but even necessary consequences, of the cooling down of our planet from its original melted condition.

In the nearly allied Science of Geography, several important undertakings have been set on foot, and some interesting discoveries made since the period of our last Meeting. 1. Dr. Kane has extended Arctic discovery, through Smith Strait, at the head of Baffin Bay, to about 3 degrees nearer the Pole. 2. Mr. Kelly has announced the result of several independent surveying expeditions despatched by him to the valley of the Atrato, with a view to the formation of a great navigable channel through Central America, between the Atlantic and Pacific Oceans. When Humboldt directed attention to this region, fifty years since, he had only uncertain reports to guide his anticipations; and these surveys have been the first to throw actual light upon this region. 3. An expedition has been despatched to North Australia, for the purpose of exploring the interior and tracing the extent of the northern watershed. Its arrival at the mouth of the Victoria River has been announced. 4. It is proposed, by the Geographical Society, to despatch an expedition to Eastern Africa, to explore the extent of the inland waters known to exist there, and if possible to discover the long-sought sources of the Nile. 5. The explorations in the Rocky Mountains, by several parties in South America, in the Pacific, and elsewhere, are far too numerous to be further alluded to.

Such are a few of the additions to our knowledge which have been made in the course of the last twenty years in those sciences with which I am most familiar. Whilst, however, the actual progress which has taken place in them is in itself so satisfactory, the change which the sentiments of the public have undergone with respect to their claims to respect, affords no less room for congratulation. If our attention is turned to the metropolis, we see rising up around us establishments for the advancement of Physical Science, of which our ancestors would scarcely have dreamed the possibility. I may instance the School of Mines, first placed under the management of our late Associate, Sir Henry De la Beche, and now presided over by Sir Roderick Murchison, as a convincing proof of the improved feeling on such subjects entertained by the Government of this country. I may mention also another proof of a greater appreciation of the claims of Science, in

their having departed from the practice which had prevailed ever since the death of Sir Isaac Newton, of regarding the Mastership of Her Majesty's Mint a purely political appointment, and in conferring it, as they have done on the two last occasions, as a reward for scientific eminence.

It is also gratifying to find that the attention of the Legislature has at length been seriously called to consider what measures of a public nature might be adopted for improving the position of Science and its cultivators, and that the Royal Society have appointed a body of its members to receive suggestions on that subject, and to report upon it, in order that a matured plan may be presented to Parliament to meet this object at its next Session. Nor, if we extend our glance to the provinces, need I go further than the neighbourhood of our present place of meeting, in order to point out as many as four active clubs of naturalists, who sustain as well as diffuse an interest in our pursuits, by frequent meetings, and by investigating, in common, the physical peculiarities of their respective neighbourhoods. In this very county, too, we have lately witnessed the first example of an Institution founded for the express purpose of communicating to the rising generation of farmers that scientific as well as practical instruction, the union of which is admitted by every enlightened agriculturist to be essential, for the purpose of deriving the fullest advantage from the natural resources of our soil. Nor can I help feeling an honest pride when I reflect, that this establishment, which has since risen to such importance, and is celebrated throughout the land as the best training school for youths destined to husbandry which England affords, should have emanated from the members of a little club existing in a neighbouring county-town, endeared to me by long associations, from its near proximity to the place of my birth, and the home of my earliest years. Turning, too, to the University to which I belong, in which a few years ago our pursuits were hardly regarded as integral parts of academical instruction, we now find in it at least a recognition of their importance to have taken place, and classical literature no longer disdaining to own as her sisters the studies which engross so large a part of the attention of the public in general. Nay, the Academic Body has lately devoted no small portion of its revenues towards the erection of a Museum, intended to comprehend under one roof all the appliances for research, as well as all the means of instruction which can be required in the several branches of Natural Philosophy. The extension, indeed, which is now given to the name in the language of naturalists, and even by the public at large, is in itself an indication of correcter views than were formerly entertained with regard to the uses of such establishments. Few, for instance, have such a notion of a Museum as Horace Walpole gave utterance to at the close of the last century, when he defined it "a hospital for everything that is singular—whether the thing has acquired singularity from having escaped the rage of time, from any natural oddness, or from being so insignificant that nobody thought it worth while to produce any more of the same." Nor will it be possible to ridicule these Institutions, as an eminent member of my own University, even within my recollection, was tempted to do, in alluding to the little Institutions of the kind set up in some of our provincial towns. "The stuffed ducks, the skeleton in the mahogany case, the starved cat and rat which were found behind a wainscot, the broken potsherd from an old barrow, the tattooed head of the New Zealand chief, the very unpleasant-looking lizards and snakes coiled up in the spirits of wine, the flint stones and cockle-shells, &c., will no longer be seen jumbled together in heterogeneous confusion," as might have been the case at the period alluded to. The Ipswich Museum has set an example, which I have no doubt will be generally followed, of selecting for such Institutions a series of types illustrative of the mineral, vegetable, and animal kingdoms; and a Committee of this Association is now employed in the useful undertaking of preparing a list of objects calculated to illustrate the

different forms in nature, and thus rendering our provincial Museums no longer mere raree-shows, but places where the masses may receive instruction in all branches of Natural History. But the Oxford Museum aims at much more than is usually understood by that title. Its central area may be regarded as the Sanctuary of the Temple of Science, intended to include all those wonderful contrivances by which the Author of the universe manifests himself to his creatures; whilst the apartments which surround it, dedicated as they will be to lectures and researches connected with all branches of Physical Science, may represent the chambers of the ministering priests, engaged in worshipping at her altar, and in expounding her mysteries. In turning, too, to this Association, the reception with which it is now greeted in the course of its migrations through the various portions of the united kingdom, is not less encouraging as an augury of the future prospects of science. Our body, indeed, may now be said to have passed unscathed through that ordeal to which all infant undertakings are exposed, and which even its great prototype, the Royal Society of London, at its commencement, did not altogether escape. And the best proof that such is the case, will be found in the different manner in which it is received by the public in general. Twenty years ago the invitations sent us proceeded, either from places like the Universities expressly dedicated to learning, and therefore peculiarly called upon to lend a helping hand to science; or else from cities, in which the predominant occupations brought the mass of the population into immediate and constant connexion with scientific processes. Now, on the contrary, we have seen the two principal centres of fashionable resort—the favourite retreats of the wealthy and noble of the land—vying with each other in their eagerness to receive us; and an almost purely agricultural county greeting us with the same hearty welcome as that which we had heretofore received from the commercial and manufacturing communities. Twenty years ago it was thought necessary to explain at our meetings the character and objects of this Association, and to vindicate it by the denunciations fulminated against it by individuals, and even by parties of men, who held it up as dangerous to religion, and subversive of sound principles in theology. Now, so marked is the change in public feeling, that we are solicited by the clergy, no less than by the laity, to hold our meetings within their precincts; and have never received a heartier welcome than in the city in which we are now assembled, which values itself so especially, and with such good reason, on the extent and excellence of its educational establishments. It begins, indeed, to be generally felt, that amongst the faculties of mind, upon the development of which in youth success in after life mainly depends, there are some which are best improved through the cultivation of the Physical Sciences, and that the rudiments of those Sciences are most easily acquired at an early period of life. That power of minute observation—those habits of method and arrangement—that aptitude for patient and laborious inquiry—that tact and sagacity in deducing inferences from evidence short of demonstration, which the Natural Sciences more particularly promote, are the fruits of early education, and acquired with difficulty at a later period. It is during childhood, also, that the memory is most fresh and retentive; and that the nomenclature of the sciences, which, from its crabbedness and technicality, often repels us at a more advanced age, is acquired almost without an effort. Although, therefore, it can hardly be expected, that the great schools in the country will assign to the Natural Sciences any important place in their systems of instruction, until the Universities for which they are the seminaries set them the example, yet I cannot doubt, but that the signal once given, both masters and scholars will eagerly embrace a change so congenial to the tastes of youth, and so favourable to the development of their intellectual faculties. And has not, it may be asked, the signal been given by the admission of the Physical Sciences into the curriculum of our academical education?

I trust that this question may be answered in the affirmative, if we are entitled to assume, that the recognition of them which has already taken place will be consistently followed up, by according to them some such substantial encouragement, as that which has been afforded hitherto almost exclusively to classical literature. Our ability to accomplish this, with the means and appliances at our command, does not, I think, admit of dispute. Happily for this country, the conservative feeling which has ever prevailed amongst us, and the immunity we have enjoyed from those political convulsions which have affected most other European nations, maintain in their integrity those Academical Establishments, which, as Monsieur Montalembert has remarked, are, like our Government and other Institutions, a magnificent specimen of the social condition of the middle ages, such as at one time existed throughout the whole of Western Europe. They are Institutions, indeed, which foreigners may well look upon with envy, but which when once destroyed, it is hopeless to expect that Governments, engrossed as they are with the interests and politics of the day, will ever think of restoring. Thanks to their existence, it rarely happens, that a student, in Oxford at least, who has distinguished himself in his classical examinations, fails to obtain some reward for his past exertions, and, if he require it, some assistance to enable him to continue them in future. And this, too, be it observed, has been the case, even whilst the natural, although perhaps mistaken partiality of our founders, for their native counties, for the parishes in which their estates lay, or for their own collateral descendants, greatly curtailed the number of fellowships which could be bestowed on merit. All, therefore, that seems wanted, now that local preferences seem on the point of being removed, is, on the one hand, a more equal distribution of the existing emoluments between the several professions, and, on the other, the admission of the claims of the sciences received into our educational system, to share in the emoluments which, up to this time, have been monopolized by the Classics. And as it is far from my wish to curtail the older studies of the University of their proper share of encouragement—for who that has passed through a course of academical study can be insensible of the advantages he has derived from that early discipline of the mind which flows from their cultivation?—I rejoice to think, that when the Legislature shall have completed the removal of those restrictions which have hitherto prevented us in many instances from consulting the claims of merit in the distribution of our emoluments, there will be ample means afforded for giving all needful encouragement to the newly recognised studies, without trenching unduly upon that amount of pecuniary encouragement which has been hitherto accorded to the Classics. In anticipation of which change, I look forward with confidence to the day, when the demands for instruction in the Physical Sciences at Oxford will become so general and so pressing, that no Institution which professes to prepare the youth it instructs for academical competition, will venture to risk its reputation by declining to admit these departments of study into its educational courses. Indeed the example has already been set in many, as I understand to be the case with the noble Seminary within whose walls we are now assembled, as well as with that older Establishment, which, under the energetic management of its present head master, has become its worthy rival as a training school for the Universities.

At any rate, I trust the time has now passed away, when studies such as those we recommend lie under the imputation of fostering sentiments inimical to religion. In countries, and in an age in which men of Letters were generally tinctured with infidelity, it is not to be supposed that Natural Philosophy would altogether escape the contagion; but the contemplation of the works of creation is surely in itself far more calculated to induce the humility that paves the way to belief, than the presumption which disdains to lean upon the supernatural. It is not, indeed, without an excusable feeling of exultation

that in surveying the triumphs of modern science, we see—

"An intellectual mastery exercised
O'er the blind elements; a purpose given;
A perseverance fed; almost a soul
Imparted to brute matter."

or that we repeat to ourselves the words in which the poet apostrophizes the philosopher,—

"Go, wondrous creature! mount where Science guides,
Go, measure earth, weigh air, and state the tides;
Instruct the planets in what orbs to run,
Correct old Time, and regulate the Sun."

Nevertheless, if we pursue the line of thought in which the same author indulges, we shall be compelled to ask ourselves, not without a deep sentiment of humiliation, even whilst contemplating the highest order of intellect which the human race has ever exhibited,—

"Could he whose rules the rapid Comet bind,
Describe or fix one movement of the mind?
Who saw its fires here rise, and there descend,
Explain his own beginning, or his end?"

When indeed we reflect within what a narrow area our researches are of necessity circumscribed—when we perceive that we are bounded in space almost to the surface of the planet in which we reside—itsself merely a speck in the universe, one of innumerable worlds invisible from the nearest of the fixed stars—when we recollect, too, that we are limited in point of time to a few short years of life and activity—that our records of the past history of the globe and of its inhabitants are comprised within a minute portion of the latest of the many epochs which the earth has gone through—and that with regard to the future, the most durable monuments we can raise to hand down our names to posterity are liable at any time to be overthrown by an earthquake, and would be obliterated, as if they had never been, by any of those processes of metamorphic action which geology tells us form a part of the cycle of changes which the globe is destined to undergo,—the more lost in wonder we may be at the vast fecundity of Nature, which within so narrow a sphere can crowd together phenomena so various and so imposing, the more sensible shall we become of the small proportion, which our highest powers and their happiest results bear, not only to the Cause of all causation, but even to other created beings, higher in the scale than ourselves, which we may conceive to exist,

"Think thou this world of hopes and fears
Could find no statelier than their peers
In yonder hundred million spheres?"

It is believed that every one of the molecules which make up the mass of a compound body is an aggregate of a number of atoms, which, by their arrangement and mutual relation, impart to the whole its peculiar properties; and, according to another speculation which has been already alluded to, these atoms are not absolutely motionless, but are ever shifting their position within certain limits, so as to induce corresponding changes in the properties of the mass. Indeed, it has been imagined, that the production of different compounds from the same elements, united in the same proportions, may be one of the consequences resulting from the different arrangement of particles thereby induced. If this hypothesis have any foundation in fact, what an example does it set before us of great effects brought about by movements which, to our senses, are too minute to be appreciable; and what an illustration does it afford us of the limited powers inherent in the human race, which are nevertheless capable of bringing about effects so varied, and to us so important; although, as compared with the universe, so insignificant! We also are atoms, chained down to the little globe in which our lot is cast; allowed a small field of action, and confined within definite limits, both as to space and as to time. We, too, can only bring about such changes in nature, as are the resultants of those few laws which it lies within the compass of our power to investigate and to take advantage of. We, too, can only run through a certain round of operations, as limited in their extent, in comparison with those which lie within the bounds of our conception, as the movements of the atoms, which serve to make up a compound molecule of any of the substances

around us, are to the revolutions of the heavenly luminaries. And as, according to Professor Owen, the conceivable modifications of the vertebral archetype are very far from being exhausted by any of the forms which now inhabit the earth, or that are known to have existed here at any former period; so likewise the properties of matter with which we are permitted to become cognizant, may form but a small portion of those of which it is susceptible, or with which the Creator may have endowed it in other portions of the universe. We are told, that in a future and a higher state of existence, the chief occupation of the blessed is that of praising and worshipping the Almighty. But is not the contemplation of the works of the Creator, and the study of the ordinances of the great lawgiver of the universe, in itself an act of praise and adoration; and, if so, may not one at least of the sources of happiness which we are promised in a future state of existence, one of the rewards for a single-minded and reverential pursuit after truth in our present state of trial, consist in a development of our faculties, and in the power of comprehending those laws and provisions of nature with which our finite reason prevents us at present from becoming cognizant? Such are a few of the reflections which the study of physical science, cultivated in a right spirit, naturally suggests; and I ask you whether they are not more calculated to inspire humility than to induce conceit; to render us more deeply conscious how much of the vast field of knowledge must ever lie concealed from our view—how small a portion of the veil of Isis it is given us to lift up—and therefore to dispose us to accept, with a more unhesitating faith, the knowledge vouchsafed from on high, on subjects which our own unassisted reason is incapable of fathoming. "Let us not, therefore," to use the language of a living prelate, "think scorn of the pleasant land." "That land is the field of ancient and modern literature—of philosophy in almost in all its departments—of the arts of reasoning and persuasion. Every part of it may be cultivated with advantage, as the Land of Canaan when bestowed upon God's peculiar people. They were not commanded to let it lie waste, as incurably polluted by the abominations of its first inhabitants; but to cultivate it, and dwell in it, living in obedience to the divine laws, and dedicating its choicest fruits to the Lord their God."

On Thursday the sections assembled at eleven o'clock, the principal centres of attraction being Professor Owen in the Geological, and Lord Stanley in the section of Economic Science and Statistics. The number of members enrolled the first day was about 800.

GOSSIP OF THE WEEK.

THE Cheltenham Meeting of the British Association promises to be memorable from the importance of its proceedings, if not remarkable for the number of its members. Many men of high mark are present in all the Sections, and papers of unusual value are announced for reading and publication. The enlargement of the scope of the Statistical Section to embrace Economic Science, or the inductive philosophy, as well as the facts of social life, will bring public questions of importance more prominently before the British Association, and thereby increase the interest taken in its proceedings, and its influence as a national institution. The address of Lord Stanley in taking the chair of Section F presented a clear and able statement of the claims of Economic Science and Statistics on the attention of the Association and of the Government. The address of Dr. Daubeny, as President of the year, was longer than usual on such occasions; but it is well to have an accurate survey of recent progress from a man of high scientific acquirements, and one who has taken active part in the affairs of the Association since its birth, now more than a quarter of a century ago.

With the close of the Parliamentary session, and of that period of heterogeneous activity called "the season," the public operations of literature draw

towards their lowest ebb. Few books of note now appear in London, though the Edinburgh publishers do not seem to pass into a state of such thorough inactivity as their metropolitan brethren. Among the announcements and rumours of new books, a new serial, by Thackeray, new novels by Hendrik Conscience, Mrs. Beecher Stowe, Mrs. Trollope, and the author of 'The Wide Wide World,' give promise of ample variety for readers of fiction. The correspondence of the first Lord Cornwallis; a supplementary volume to Dr. Waagen's 'Treasures of Art'; a new edition of Campbell's 'Lives of the Chancellors'; and the conclusion of the 'Autobiography of James Silk Buckingham,' we have not mentioned in our recent announcements.

Manuscript letters of Cowper, the poet, are rarely met with, as collectors of autographs well know. Last week, however, there were sold at Messrs. Puttick and Simpson's, from the collection of the late Mr. R. C. Lambe, forty-four letters of William Cowper to his friend Samuel Rose. Twenty-one of these are unpublished, and of several of the remainder only portions had been given by biographers and editors. The sum brought by the whole forty-four letters was 115*l.* 13*s.*, being a little more than 2*l.* 12*s.* 6*d.* for each on the average. The highest sum (10*l.* 15*s.*) was given for one dated Weston Underwood, March 29, 1788, already printed, in which Cowper refers to his first poems on Slavery. "If you hear ballads sung in the streets on the subject of the hardships suffered by the poor negroes in the islands, they are probably mine. I was lately applied to for assistance in that way by a society of gentlemen, enlisted in that laudable service. I have sent them [three]; two are serious, and one is not so. Of the former, one is called the Negro's Complaint, and one, the Morning Dream. The latter is entitled, Sweet Meat has sour Sauce; or, the Slave Trader in the Dumps. The subject, as a subject for song, did not strike me much, but the application was from a quarter that might command me, and the occasion itself, whatever difficulties might attend it, offered pleas that were irresistible. It must be an honour to any man to have given a stroke to that chain, however feeble." One of the first unpublished letters in the series, dated The Lodge, April 20, 1789, reports the progress of the 'Odyssey.' "Since the woe of day when I commenced Reviewer, my opportunities of letter-writing have been few indeed. I purpose, however, for the future to manage that matter with more discretion, and not to suffer an occupation by which I can gain neither money nor fame, to deprive me of the pleasure of corresponding with my friends, to me more valuable than either. . . . I am now in the sixteenth Book of the 'Odyssey,' and, after having been so long engaged in it, begin with some impatience to look forward to the end of an undertaking almost too long and laborious for any creature to meddle with, the date of whose existence here is limited to three score years and ten." (3*l.* 5*s.*) In 1793, some of the unpublished letters refer, *inter alia*, to the translation of the 'Iliad.' "Jan. 9, 1793. I have already revised and made some alterations in the 23*d.* book of the 'Iliad;' some of them sin against my own judgment, but one must consent in a degree to be led by those who lead the public. . . . To be disgusted with what I have written is no uncommon thing with me, and when my melancholy is very predominant, I cannot bear a line of it. . . . I shall be glad when the bargain for the copyright of Homer can be struck with Johnson." This sold for 4*l.* 6*s.* In the later letters of the series we see the gloom coming down upon him which darkened the close of his life. A letter of Jan. 2, 1794 (two pages 4*to.*, 3*l.* 10*s.*), has these affecting passages:—"I rose this morning, and have risen many mornings past, under a load of dejection and melancholy uncommon even with me, but not uncommon at this season of the year. This dreadful affection of my spirits wears off in some measure as the day proceeds, but while it lasts it makes all composition of either prose or poetry impracticable. . . . God knows that I write at this moment

under the pressure of sadness not to be described. Were I less absorbed in miserable self than I am, the horrid condition of Europe, and especially the affairs of England, would touch me deeply. But, as it is, whether towns are taken or battles won or lost, seems to affect me little." Among the other manuscripts and articles of interest at the sale were 164 letters of Wilkie the painter; the signals used at the Battle of Trafalgar, signed by Nelson, 5*l.* 5*s.*; an unpublished memoir of Mr. Henry Weber, by Sir W. Scott, seven pages quarto, written as an introduction to Weber's 'Collection of Metrical Romances,' sold for 2*l.* 5*s.*; a series of 1200 autograph letters of literary men, with above a hundred portraits, arranged alphabetically, in nine vols. quarto, from the Upcott Collection, sold for 15*l.* 5*s.*

The Third Report of the Department of Science and Art has just been issued to the public. From the summary of the year's proceedings which has been published by Dr. Lyon Playfair, the secretary, it appears that the number of visitors to the museums and libraries of the Department has largely increased, chiefly owing to the new Circulating Museum of Ornamental Art in the provinces, and the improved arrangements in the Museum at Edinburgh. In London, on the other hand, the attendance has diminished on the whole, though since the termination of the war it is stated to be again on the increase. The Geological Surveys and the Mining Record Office, which still continue to be branches of this Department, have been carried on with increased activity, the former under the superintendence of Sir R. I. Murchison, Professor Ramsay, and Professor J. B. Jukes. The Mining Record Report, published by Mr. Robert Hunt in a separate form, has already been noticed by us. The Schools of Art in London have been attended by nearly 12,000 pupils, and the number of children taught drawing in public schools amounts to 13,988. This is an increase of 80 per cent. upon the return for last year, but it is still insufficient to meet the public wants. Instruction in art has been given to 2181 teachers of public schools. The schools of science, the working men's lectures in London, and provincial lectures in Ireland, have been attended by 10,000 persons. No changes have been made in the constitution of the Department. The absence of Mr. Cole, the Inspector-General, at the Paris Exhibition, and the occupation of Mr. Redgrave, the Art-Superintendent, on the same occasion, have deprived the Department to some extent of the value of their services; but the Institution appears to be now in full activity; and to promise favourable results.

On the removal of Mr. Balfour Stewart to be assistant to Professor J. D. Forbes at Edinburgh, the managers of the Kew Observatory applied to the Council of the Society of Arts to recommend an assistant observer for the Kew Observatory. The Council nominated Mr. Charles Chambers, of Leeds, who has been this week appointed to the office. Mr. Chambers obtained a certificate of the first class in mathematics at the examinations held in June last at the Society's house in the Adelphi.

The office of Assistant Secretary to the Society of Arts, which has just been filled up, was the subject of a smart competition. There were no less than one hundred candidates originally, which number was reduced by the Committee to sixteen. These sixteen were examined, and five of the number were pronounced to have passed with distinction. These were Messrs. Edward Holmes and Charles Critchett, equal; M. H. Wilkin, D. Henry, and J. P. Bidlake. The appointment was finally conferred upon Mr. Charles Critchett.

The money which has been deposited in the hands of Alderman Challis, amounting to about 5000*l.*, for the purpose of erecting a monument to the Great Exhibition of 1851, is, we understand, about to be devoted to its intended purpose. The Committee are open to receive designs or models from sculptors, English and foreign, for the monument in question—Dr. Booth, of the Society of Arts, and Mr. George Godwin, being the honorary secretaries. The question of the position of the

monument is still undecided. Common sense seems to suggest the actual site of the building in Hyde Park as the only appropriate spot, and we doubt not that this will be the destination ultimately fixed upon.

The weather and the period of the season have contributed equally of late to the inspection of architecture and the practical pursuit of archaeology. Accordingly, we find great activity among the Societies. On the 20th August, an excursion is announced by the North Oxfordshire Archaeological Society. The Exeter Diocesan Architectural Society has met at Plymouth under the direction of the Rev. W. J. Coppard. They visited the ancient chapel of St. Nicholas, at Rame Head, the Keyham docks, and the church and abbey at Buckland Monachorum.

Messrs. Sotheby and Wilkinson will sell some very interesting autographs and literary treasures, at their rooms, on the 19th inst., including a sonnet in the autograph of Tasso; historical documents with the signatures of Henry VII. and VIII., Elizabeth, James I., Charles I., and Oliver Cromwell, and the statesmen of their times; the manuscript of Dr. Doddridge's 'Family Expositor'; and a variety of autograph signatures, among which are those of John Hooper and John Bradford, two of the noblest of England's martyrs. Letters of Lord Nelson, R. B. Sheridan, Dr. Watts, and other notables are in the collection.

The annual report of the Perpetual Secretary of the Académie des Inscriptions et Belles Lettres of Paris, on the labours of the Comités of the Academy in the first half of the present year, has reached us. It announces the publication of another volume (the twenty-third) of the gigantic work, the 'Histoire Littéraire de France.' This volume brings down the literary annals of France to the end of the thirteenth century, and contains specimens of the poetry and other publications of the epoch. The 'Histoire Littéraire' was commenced one hundred and twenty-three years ago by the Benedictines, but the plan of it was so vast, and the labour it caused so excessive, that even those most patient of all literary drudges despaired of ever being able to complete it, and they, after working at it for many years, gave it up. For forty-seven years nothing whatever was done with it, and then the Academy of Inscriptions determined to complete it. Year by year the Academy has made some progress with it, and its zeal seems in no respect diminished: but many and many a year will pass away before the work can be brought down to modern times. With respect to the other publications of the Academy, the report is on the whole satisfactory. Thus, the twenty-first volume of the *Mémoires* of the Academy is nearly completed; so is the fifth of the *Mémoires des Savants Étrangers* (these comprise various subjects of erudition); the second part of the eighteenth volume of the 'Notices et Extraits des Manuscrits' is in the press; and progress has been made in the preparation of the twenty-second volume of the 'Historiens des Gaules et de la France,' of the volume which is to contain the 'Chartes et Diplômes de Pepin et Charlemagne,' of the seventh of the 'Table des Chartes et Diplômes Imprimés,' and of that of the 'Historiens Grecs et Orientaux des Croisades.'

A French gentleman, M. Louis Fould, brother to the Minister of State, has offered a prize of 800*l.* (20,000 francs) for the best History of Art and the Industrial Arts before Pericles. The prize is to remain open for three years, and is to be awarded by the Académie des Inscriptions et Belles Lettres.

The Belgian Government has appointed a commission to inquire into the best means of promoting and encouraging Flemish literature, and the use of the Flemish language in connexion with the different branches of the administration of the government. The literary element preponderates in the commission, out of the nine members there being seven professional literati—viz., Conscience and Mertens of Antwerp, Rensselaers of Ghent, Professor David of Löwen, Stroobant and Van der Voort of Brussels.

A new work for children, entitled 'Märchen und Sagen' (Fairy Tales and Legends), is now being published in numbers in Düsseldorf, and promises to be a great acquisition to the many valuable additions which Germany contributes to fairy lore. Whilst England remains unrivalled in the pure and high tone of her literature for young people, Germany, more mystical and less practical, maintains her ground in all that belongs to the fancy and imagination; the spirits of earth, air, and water, demons, gnomes, and goblins, fairies and elves, have their peculiar dwelling-place in the German brain, and yet find a welcome in every land where young hearts beat. What child does not delight in the marvellous; and yet we stuff them now with all the dry "ologies" and still drier moral tales. The book now before us is beautifully illustrated with two coloured lithographs, cleverly designed and very well executed. The letter-press consists of three sheets of original matter, and the whole is published for one shilling per number. Bechstein's name appears amongst the contributors: his story in the first number, 'Undank ist der Welt Lohn' (Ingratitude is the World's Wages), is spirited and amusing.

An account was given, in the last sitting of the Academy of Sciences of Paris, of the recent finding of the fossil remains of a very large monkey near the town of Saint Gaudens, department of the Haute Garonne. From an examination of the remains, it appears that the monkey belonged to the same group as the chimpanzee and other kindred animals, but that its teeth were somewhat different, and that it had a smaller face. The remains were found by a naturalist named Fontan. This makes the sixth of the monkey species found in Europe.

M. Dunal, Professor of Botany in the Faculty of Sciences of Montpellier, and Corresponding Member of the French Institute, has just died.

M. Hermite has been elected a member of the French Academy of Sciences, section of Mathematics, in the room of the late M. Binet.

FINE ARTS.

It is proposed, in the spring of 1858, to hold an exhibition of those works of ornamental art which have been produced since the establishment of the government schools, as articles of commerce, which, either in their original design or partial execution, have been carried out by the pupils in the school. The works are to consist of carving, furniture, decorations, metal work, jewellery, and goldsmith's work, pottery, glass, and decorative woven fabrics. Ample notice has been given of the holding of the intended exhibition, in order "that the public may have an opportunity of performing their part, by giving liberal commissions to manufacturers and others to produce useful works, which, exhibited on this occasion, will be calculated to show fully and fairly the influence which the schools of art are exercising in this country." Further announcements as to the time of forwarding specimens will be made hereafter.

The architects of London have displayed a brotherhood of feeling more admirable than it is common, in the case of professional men, by presenting a testimonial to Mr. Pennethorne, on the completion of the new wing of Somerset House. An address was read, signed by all the leading architects of London, from which it appears that a testimonial is to follow, in the form of a medal, struck in gold, in honour of Sir W. Chambers, the design for which is to be carried out under the superintendence of the Society of Arts.

An original design for a Scripture subject, illustrative of the text "Suffer little children to come unto me," has just been published by Messrs. J. H. and J. Parker, 377, Strand. The composition is by the Hon. Gertrude Boscawen; purely Protestant in its character, simple in idea, falling short of the highest expression in the central figure of Christ, but in all other respects arranged with skill and dignity. The colouring is broad and in masses, and the subject is thereby well adapted for

printing in colours, which has been cleverly done by Messrs. Malby and Sons. The same quality would recommend the design for the purposes of stained glass, and we should recommend its application to the ornament of some school-room window, for which it is well suited alike in sentiment, style, and subject.

Messrs. Sotheby and Wilkinson are to sell by auction, at their rooms, on Monday, and two following days, the collection of coins, medals, and miscellaneous objects, including armour, ornaments, and minerals, from the collection of the late Bindon Blood, Esq.

On the 20th of August will be sold at the same rooms, a valuable collection of drawings, chiefly illustrative of the architecture, sculpture, and painting of the middle ages, formed by Dr. Ludwig Puttrich, of Leipzig.

We have had great pleasure in inspecting a collection of water-colour drawings by Mr. Henry Cook, now in the course of exhibition at No. 13, Regent-street, opposite the Gallery of Illustration. The Highlands of Scotland, Athens, and Constantinople have been the scenes of the artist's delightful labours. The local effects of air and light appear to have been admirably preserved. A small sketch in the mountains of Scotland, without a name, representing the descent of a mountain mist, the foreground being richly coloured, with warm heath flowers and plants, is a gem of landscape art. Two views of the *Temple of Jupiter Olympian*, on the other hand, are distinguished for the majesty of their subject, and the purity of the surrounding air. The *Érechtheum* has been represented at sunset; the rays of the departing luminary are streaming through the upper sky, and the base of the temple is beginning already to darken into evening gloom. The peculiar colouring of these walls and caryatides conveys a strong impression of truth, and proves the originality of the study. *Constantinople* is given in a clear silvery light of its own, differing materially from the rest. The views of *Naples* and *Sorrento* are more formal and conventional. The grandeur of the Greek architecture, and the wild mountain heather, have inspired Mr. Cook with more real and genuine enthusiasm than is to be found in the ever-recurring stock elements of Italian composition—stone pines, blue sea, latten sails, dressed-up peasants, &c. &c., of all which true original art has long learned to be heartily weary.

The subject of the cartoon which Kaulbach has lately finished, for the fifth of the series of six large pictures to represent the principal epochs in the history of the world, is taken from the crusades, and is a wonderful work both for its masterly drawing and powerful conception. The artist has chosen the time of the arrival of the first army of Christians before Jerusalem; a troop of pilgrims, penitents, and minstrels, is represented kneeling in prayer, occupying the centre of the foreground, and amongst them Peter of Amiens greeting the city and the Saviour with outstretched arms. The figures are for the most part drawn with their backs to the spectator, but they are delineated in such a clear and energetic style that there is no mistaking the various expressions of exhaustion, melancholy, and ecstasy of joy, in their gestures and bearing. To the left of the crowd, a little above Peter the Hermit, a procession of young knights is seen, accompanied by their wives, into which Kaulbach has infused all the power of his masterly pencil, and more grace and beauty than usual. One group immediately attracts the attention. It consists of a beautiful fair-haired woman borne on a palanquin by four swarthy Moors to the shade of a green tree; close beside her, her husband bearing his sword high in the air in his right hand, and holding her hand in his left, both gazing with earnest looks towards the holy city; following them rides another knight with his wife seated on the horse behind, to whom he turns with looks full of love, at the same time pointing with his outstretched hand to the object of their long and perilous journey. The background is filled with knights and soldiers, with nodding plumes and waving banners. On the right of the picture we see the

leaders of the army, powerful looking heroes, with slain Mahometans at their feet. The centre of the picture is occupied by troops laden with booty, from which two thieves are seen plundering a golden chaplet. Godfrey of Bouillon rides in the front with a crown of thorns round his helmet, and a crown of gold in his hand, to recall Christ to him, who is represented seated on clouds surrounded by a glory, welcoming the army. Young priests in white robes, and bishops mounted on mules, complete the picture. The scene is depicted on the Mount of Olives, whilst Jerusalem, separated from it by a valley, fills up the background.

MUSIC AND THE DRAMA.

At Her Majesty's Theatre a supplementary series of performances has been given this week, in which Mdle. Piccolomini has appeared in the characters which have proved so attractive during the season.

The last night of the Royal Italian Opera at the Lyceum was devoted to Donizetti's *La Favorita*, in the closing act of which Grisi and Mario appear to greater advantage than in almost any other scene in the whole lyric drama. On Friday the last of the concerts at the Crystal Palace surpassed all that preceded it in the variety and excellence of the performances. Apart from the connexion of these concerts with the peculiar position of the Covent Garden company, they have proved the occasion of a successful experiment as to the capabilities of the Crystal Palace for entertainments of this class.

A powerful company, comprising Mesdames Clara Novello, Gassier, Grisi, Albani, Messrs. Sims Reeves, Gassier, Mario, Formes, and Salviari, is engaged for a series of provincial concerts during the summer and autumn. Bottesini and Pico are also engaged for these concerts, which will be given in Manchester, Liverpool, Dublin, and other towns.

Madame Bosio, and Lablache, Tagliafico, and Calzolari, are among the singers engaged for the Imperial fêtes soon about to take place at Moscow.

There is no new musical event to note this week except the appearance, at M. Jullien's concerts at the Surrey Gardens, of the 'Zouave trumpeters, twenty-four in number, whose various military signals in camp and field are cleverly arranged in a dramatic form, and performed with much energy and spirit.

The only dramatic novelty of the week has been the production of *Richard III.*, at Astley's, where the enterprising manager, Mr. Cooke, improves upon Mr. Kean's historical illustrations of Shakspeare, by a strong demonstration of cavalry in the Bosworth field scene.

VARIETIES.

Folk-Lore and Local Superstitions.—An antiquarian correspondent sends the following:—"No one who has made the tour of the northern counties of England can have failed to observe the great contrast which the inhabitants, but more especially the peasantry, present to those of the southern and western portion of our island. In the north traditions are rife and sympathies are still alive, but in the south and west they are comparatively obliterated or altogether extinct. A north country ballad is still listened to with delight by north country people, and tales of Derwentwater and the Young Pretender will bring tears in the eyes of hearer and reciter. We once paid a visit to an old man in Cumberland, whose eyes filled with tears as he exhibited several relics of 'Bonnie Prince Charlie.' It is long since any sympathy was exhibited in the west for Monmouth! The people of the north still bless or ban their friends or enemies after their own peculiar manner, and doubtless according to ancient formulae. As an example of the latter, we have the following strange scene at a recent wedding at Thorne in Yorkshire. A girl joined the procession to church in a condition which indicated that she would soon

become a mother. She muttered maledictions on the match, and when the ceremony was completed, she joined the newly-married couple, and recited the awful imprecations contained in the 109th Psalm, concluding with the words, 'Let his posterity be cut off; and in the generation following let their name be blotted out,' &c. Having uttered this, she three times crossed the path of her faithless lover, and departed with her shame! To the curious in folk-lore this mode of banning may be known, but many will scarcely credit that such a scene was enacted in England but a few days since."

THE GOLDEN AGE.

"When will the Golden Age roll round again?"
A golden age mankind has never seen;
And though the world has oft been drest in green,
How many riven hearts have pined in pain?
How oft has tyranny, with despot sway,
Stalked from her secret caves in open day,
Where serpent-like she had in slumber lain,
And crushed the spirits who have dared complain?

Was that the Golden Age when first
Nature and Light from chaos burst,
And sun and moons in thousand spheres,
Began their evolutions and their years;
And when to crown the mighty plan,
"The Uncreate created man?"

Ah! soon the paradise was soiled by sin,
And what was fair without made foul within.

Was that the Golden Age when earth
Regenerated sprung
From deluge—like a second birth—
And Heaven with music rung;

When like a giant huge refreshed with sleep,
The world appeared from out the vasty deep?
Ah, no! for still was vice found lurking there,
And drunkenness defiled what else was fair.

Was that the Golden Age when franchised Greece
Was blest and flourishing in arts and peace;
When Poesy's sweet goddess o'er Olymps shone,
And claimed her hills and valleys as her own;
When heaven-born Orpheus tuned his lyre,
And "burning Sappho" sung her songs of fire?
Ah, no! for there did reckless passion mar the joy,
And war was kindled by the Trojan boy.

Was that the Golden Age when seven-hilled Rome
Imperial mandates issued to a subject world;
When Cicero's eloquence shook the Forum's dome,
And Scipio's conquering banners were unfurled;
When Brutus' patriotism spoke Caesar's doom,
And traitors from the Tarpeian rock were hurled?
Ah, no! for still was patrician pride all good withstood,
And reared its seat of power through waves of blood.

Is this the Golden Age, now commerce sends
Her freighted vessels to earth's utmost ends;
When Science, with a great and wondrous skill,
Makes the rough waves and winds obey her will;
And Genius carves itself a deathless name
Upon the tablets of a nation's fame?
Ah, no! for now does lust, and want, and crime,
Debase the soul of man in every clime.

"When will the Golden Age roll round again?"
When Love goes forth as like a noontide flood,
And fills and purges all hearts for good;
When man unto his brother man shall be
Truthful and trusting in reality;
When Charity—cold Charity no more—
Is understood and felt the wide world o'er;
And Knowledge, like a beauteous thing of light,
Shall banish ignorance for aye, and make earth bright.
Then shall the Golden Age roll round again!

JOSEPH AYER.

Longfellow and Balfe.—Mr. Balfe may well feel proud of the letter he has received from Longfellow, the poet of America:—

"MY DEAR SIR,—I feel very much flattered by your friendly note, and the precious volume of music which came with it; and I should not be so tardy in my thanks, had I not been laid up on my sofa with a lame knee for the last month. Finally, I have crept from Cambridge to this seaside place, and am well enough to sit at a table and write. "One of my first letters is to acknowledge your beautiful gift, and to say how successful this musical translation of my poems seems to me. You have sung them better than I did; for, after all, music reproduces the mood of mind in which a piece is written better than words can."

"For all these various and beautiful melodies, these interpretations of my thoughts, I very sincerely thank you; and beg to assure you that I truly appreciate this token of your regard for what I have written, and all the friendly expressions of your letter."

"Believe me, my dear Sir, yours very faithfully,

"HENRY W. LONGFELLOW.

"Nahant, near Boston, July 12, 1856."

TO CORRESPONDENTS.

Several articles and communications are in type, but have been unavoidably postponed from the length of the Report of the Proceedings of the British Association

Received—T. B., Edinburgh; M. A.; F. A. S.

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